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**FINAL SCREENING SITE INSPECTION REPORT**

for

**WAUKESHA SANITARY LANDFILL**

**Waukesha, Wisconsin**

**USEPA ID# WID980678114**

**January 1992**



**Emergency and Remedial Response Program**

**Wisconsin Department of Natural Resources**

SCREENING SITE INSPECTION REPORT  
FOR

**WAUKESHA SANITARY LANDFILL**

WAUKESHA, WISCONSIN

U.S. EPA ID: WID980678114

JANUARY 1992

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SCREENING SITE INSPECTION REPORT  
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WAUKESHA SANITARY LANDFILL  
U.S. EPA I.D.: WID 980678114

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# TABLE OF CONTENTS

Section	Page
1 INTRODUCTION.....	1
2 BACKGROUND.....	4
2.1 INTRODUCTION.....	4
2.2 SITE DESCRIPTION.....	4
2.3 SITE HISTORY.....	6
3 SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS.....	8
3.1 INTRODUCTION.....	8
3.2 DISCUSSIONS WITH SITE REPRESENTATIVES.....	8
3.3 RECONNAISSANCE INSPECTION.....	8
3.4 SSI DRILLING ACTIVITIES.....	10
3.5 SAMPLING PROCEDURES.....	11
4 ANALYTICAL RESULTS.....	18
4.1 INTRODUCTION.....	18
4.2 RESULTS OF CHEMICAL ANALYSIS OF SSI SAMPLES.....	18
5 DISCUSSION OF MIGRATION PATHWAYS.....	43
5.1 INTRODUCTION.....	43
5.2 GROUNDWATER.....	43
5.3 SURFACE WATER.....	<del>48</del> <del>50</del>
5.4 AIR.....	<del>49</del>
5.5 FIRE AND EXPLOSION.....	50
5.6 SOIL EXPOSURE.....	51
6 BIBLIOGRAPHY.....	53



## LIST OF ILLUSTRATIONS

<u>Figure</u>	<u>Page</u>
2-1 Site Location Map.....	2
2-2 Site Map.....	5
3-1 Groundwater Sampling Locations.....	13
3-2 Soil Sampling Locations.....	16
5-1 Geohydrogeologic Section Through Waukesha County...	44

## LIST OF TABLES

<u>Table</u>	<u>Page</u>
3-1 Addresses of Private Water Supply Sampling Locations	14
4-1 Results of Chemical Analysis of SSI Samples.....	19-42

### Appendix

A	U.S. EPA FORM 2070-13
B	SOIL BORING LOGS AND AREA WELL CONSTRUCTION REPORTS
C	SSI SITE PHOTOGRAPHS
D	FOUR MILE RADIUS MAP

## 1. INTRODUCTION

The Wisconsin Department of Natural Resources (WDNR) was tasked by the United States Environmental Protection Agency (U.S. EPA) to conduct a screening site inspection (SSI) of the Waukesha Sanitary Landfill site under the 1990 Cooperative Agreement.

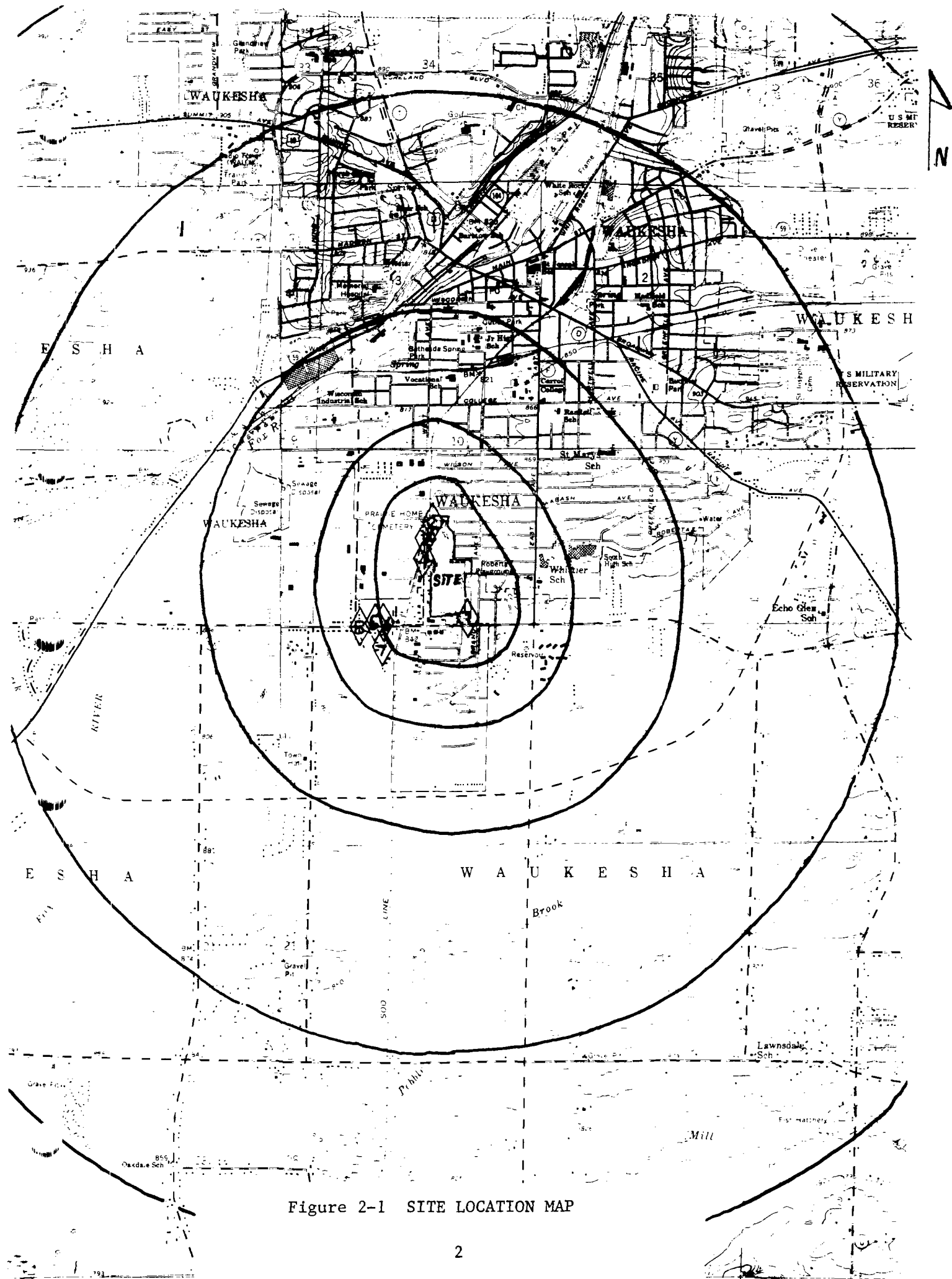
The Waukesha Sanitary Landfill facility was identified to the U.S. EPA through inventory efforts by the Wisconsin Department of Natural Resources (WDNR) and indirectly by means of a Waste Disposal Site Survey Report, commonly referred to as the "Eckhart Report". The report indicates that between 1956 and 1960 the Koppers Company Inc. (Thiem Corporation) used the facility for the disposal of organic and inorganic materials. The landfilled materials included mixed industrial waste and drummed waste. The facility was closed in October of 1975 and remains inactive (WDNR, December, 1984).

The facility was established on properties originally used for sand and gravel mining. Disposal operations began in the late 1950's, well in advance of licensing by WDNR. In 1970 a facility disposal license was approved. The landfill license authorized the disposal of several waste types including, commercial, industrial, demolition, trash, and liquid wastes. The site was open to the public as well as local waste hauling firms (WDNR Solid Waste Case Files).

The site was closed to the public in 1972. Between 1972 and 1975, incinerator ash from the City of Waukesha waste incinerator and bulk items (appliances etc.) were disposed. The facility was closed in 1975.

Disposal operations at the facility began in the north and moved progressively south. Several properties were purchased or leased throughout the period of facility operation. The site finally encompassed an area of approximately 43 acres. The northern portion of the site has been developed and now contains multi-family apartment buildings. Potential source areas of contamination are the closed/abandoned disposal areas that include both vacant and developed properties. A site location map is available on Figure 2-1.

The site was evaluated in the form of a preliminary assessment (PA) that was submitted to U.S. EPA. The PA was prepared by Elizabeth Duchelle of WDNR. The PA is dated December 27, 1984. The inspection team leader prepared an SSI work plan for the Waukesha Sanitary Landfill facility.



The SSI included a file review of the facility, reconnaissance inspection of the site, the instrumentation of four monitoring wells, collection of eight groundwater samples from six monitoring wells and two private water supplies, the collection of three sub-surface soil samples, and the collection of four surface soil samples. Duplicate samples were also collected. The on-site SSI activities were conducted during two occasions. During the week of August 13, 1990 the soil borings were advanced and four monitoring wells were instrumented. Three subsurface soil samples were collected from soil borings S01 through S03. On September 18-19, 1990, all remaining SSI sampling activities were conducted.

The purpose of an SSI has been stated by U.S. EPA in a directive outlining Pre-Remedial Program strategies. The directive states:

All sites will receive a screening SI to 1) collect additional data beyond the PA to enable a more refined preliminary HRS (Hazard Ranking System) score, 2) establish priorities among sites most likely to qualify for the NPL (National Priorities List), and 3) identify the most critical data requirements for the listing SI step. A screening SI will not have rigorous data quality objectives (DQOs). Based on the refined preliminary HRS score and other technical judgement factors, the site will then either be designated as NFRAP (no further remedial action planned), or carried forward as an NPL listing candidate. An Expanded Site Inspection (ESI) will not automatically be done on these sites, however. First, they will go through a management evaluation to determine whether they can be addressed by another authority such as RCRA (Resource Conservation and Recovery Act). Sites that are designated NFRAP or deferred to other statutes are not candidates for an ESI.

The ESI will address all the data requirements of the revised HRS using field screening and NPL level DQOs. It may also provide needed data in a format to support remedial investigation work plan development. Only sites that appear to score high enough for listing and that have not been deferred to another authority will receive an ESI.

U.S. EPA Region V has also instructed State Inspection Teams to identify sites during the SSI that may require removal action to remediate an immediate human health and/or environmental threat.

## 2. SITE BACKGROUND

### 2.1 INTRODUCTION

This section includes information obtained from SSI work plan preparation.

### 2.2 SITE DESCRIPTION

The site is currently a closed and abandoned solid waste landfill. The site originated as a sand and gravel pit. Waste disposal operations began in the 1950's on a privately owned parcel north of Hoover Drive. Soil borings advanced on this parcel indicate that waste was disposed to a depth of 40 to 60 feet below existing grade. The boring logs also indicate that waste was disposed close to, or, directly on top of, dolomite bedrock. Prior to 1960, at least one industrial source is reported to have disposed of mixed industrial and drummed waste at the facility (WDNR Solid Waste Case File).

In August 1970, a solid waste disposal facility license application was received and approved by WDNR. The license approved the disposal of several waste types including, commercial, industrial, demolition, trash, and liquid wastes. However, WDNR landfill inspection reports from 1971-1973 indicate that toxic and hazardous wastes were allowed at the site. A WDNR letter dated May 18, 1971 referenced a separate disposal area for disposal of toxic and hazardous wastes. Another memo of the City of Waukesha Public Works Department (dated May 19, 1972) references that some watery type liquid industrial wastes that are non-burnable, were spread over the surface of the landfill for dust control (WDNR Solid Waste Case Files). The Solid Waste Case File of the Waukesha Sanitary Landfill contains reference to a phone conversation (dated April 7, 1981) with a former Wisconsin Department of Transportation employee. The employee described the dumping of lead based paint and containers along with solvents. The waste material reportedly consisted of drummed old paint, empty drums, and solvents. About 40 drums per load were dumped weekly, all summer long. The employee recalled that apartment buildings have since been built over the area where this disposal occurred.

The landfill began operating in the northern portion of the site near Estberg Avenue and moved progressively south toward Sunset Drive. The facility area appears to have finally reached over 40 acres in size.

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The landfill ranged in width from approximately 500 feet to 1000 feet and is bounded by residential and commercial properties adjacent to West Avenue on the west and Grand Avenue on the east. The thickness of fill on the site averages from 15 feet to 30 feet and greater (45 feet), with the thickest deposits on the northern one-half of the site. (Martin, Krause, August, 1990)

The facility does not have a clay liner. Leachate collection and gas collection systems do not exist.

Disposal activities at the site were stopped as of October 1, 1975. On March 3, 1977, WDNR approved a final cover on the site consisting of six inches of sewage sludge and two inches of topsoil. In September of 1978, the facility was given closure status by WDNR. (WDNR Solid Waste Case Files)

### 2.3 SITE HISTORY

The Waukesha Sanitary Landfill facility was developed on parcels of land that were originally used to quarry sand and gravel. The site was used for gravel extraction from approximately the 1930s until the mid-1950s (Miller, August, 1990). Upon termination of the sand and gravel mining operation, the site was operated as a private landfill. Disposal operations began on the northern portion of the site, just south of Estberg Avenue.

A Waste Disposal Site Survey report (potentially referred to as the "Eckhart Report") indicates that between 1956 and 1960 the Koppers Company Inc. (Thiem Corporation) used the original disposal area for a variety of generic waste types in drum and bulk form. The chemical components of the waste included both organic and inorganic materials. City of Waukesha officials believe that most of the industries in the area disposed of waste in this landfill. The waste types included organic resins, oil and oil sludges, solvents, foundry sand, lead based paints and paint solvents (Martin, Krause, August, 1990).

The City of Waukesha began using the disposal area during the 1960s. WDNR file information indicates that at least one portion of the active disposal area was owned by **non responsive**. Complete information is not available for waste types and amounts. The waste types are believed to be similar to those previously disposed at the site prior to operation by the city. City of Waukesha file information does indicate that prior to June 1, 1965 a 13 acre parcel on the north end of the site was used for disposal of trees and construction debris. On August 2, 1966 City of Waukesha special ordinance (35-66) stated that residential waste disposed at the facility was to include; empty cans or bottles, glass, wooden or paper boxes, old metals or alloys, stone, ashes, brick, trees,

paper, and the like. Garbage, bodies of animals, grease fats, oil, explosives, and similar material were prohibited.

Waste disposal operations began on the northern portion of the site and advanced south. City of Waukesha file information shows at least four contract agreements for property acquisition between the City of Waukesha and private landowners. An agreement dated June 1, 1965 indicates the transfer of 13 acres on the north to the City by non responsive. On September 4, 1968 non responsive transferred a parcel that is located west of a funeral home located at 1110 Grand Avenue. non responsive transferred a nine acre parcel located west of the original church property to the City on September 16, 1969. On October 7, 1970, non responsive non responsive transferred a lot located north of the church to the City.

In the mid to late 1960s the site accepted all types of solid and industrial wastes, including toxic and hazardous wastes. Garbage was still prohibited. During the late 1960s through the early 1970s most of the waste accepted at the site is believed to have been incinerator ash, brush, foundry sand, and appliances (Martin, Krause, August 1990).

The Wisconsin Department of Natural Resources (WDNR) issued a Solid Waste disposal license (No.521) to the City of Waukesha to operate the facility on August 24, 1970. The license authorized the disposal of commercial, demolition, trash, industrial, and liquid wastes. The site owner was identified as non responsive. There have been no records observed to indicate if the City of Waukesha ever purchased the property from non responsive (WDNR Solid Waste Case Files).

WDNR landfill inspection reports indicated that the site was approved for wood matter and trash as well as toxic and hazardous waste. A WDNR letter dated May 18, 1971 stated that a separate area at the site that was used for the disposal of toxic and hazardous waste, should be posted.

The facility was closed to the public in 1972. WDNR Solid Waste Files describe the facility at that time as a ten acre site located south of Hoover Drive. The City of Waukesha used the site from 1972 to 1975 primarily for the disposal of incinerator ash from the City incinerator and also appliances. Some sewage sludge or grit, as well as other non combustibles, were also disposed. The site was closed as of October 1, 1975. Site closure activities were conducted from 1976 through 1977. On March 3, 1977 WDNR approved a final cover on the site consisting of six inches of sewage sludge and two inches of top soil.



### **3. SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS**

#### **3.1 INTRODUCTION**

This section outlines procedures and observations of the Waukesha Sanitary Landfill facility SSI. Individual sub-sections address: the reconnaissance inspection, field observations, and SSI sampling procedures. Rationale for specific activities are also provided. The SSI was conducted in accordance with a U.S. EPA approved work plan.

The U.S. EPA Potential Hazardous Waste Site Inspection Report (Form 2070-13) for the Waukesha Sanitary Landfill site is provided in Appendix A.

#### **3.2 DISCUSSIONS WITH SITE REPRESENTATIVES**

John Krahling, the inspection team leader, spoke with Mr. Rodney Vanden Noven, Director of Public Works, and Mr. Richard Zimmermann, City Engineer of the City of Waukesha. The discussion was conducted on August 9, 1990 at 1:00 p.m at the Waukesha City Hall office. Discussions were conducted to gather general information regarding site operations, site characteristics, and other information that would aid in conducting SSI activities.

#### **3.3 RECONNAISSANCE INSPECTION**

Prior to the SSI, the inspection leader had conducted a reconnaissance inspection of the Waukesha Sanitary Landfill and surrounding area. The reconnaissance inspection included a walk through of the site and a drive through of the surrounding area. Determinations were made regarding appropriate health and safety requirements needed to conduct on-site activities. Observations were made to help characterize the site. Several sampling locations and potential monitoring well locations were also determined during the inspection. The reconnaissance inspection was conducted on July 9, 1990. (WDNR, July 23, 1990.)

##### Reconnaissance Inspection Observations:

The Waukesha Sanitary Landfill is located in the Township of Waukesha, Waukesha County, in the southwest part of the City of Waukesha. The site is found in a highly populated residential area and surrounded by commercial and light industrial businesses.

Access to the site (southern portion) is from Hoover Drive, which connects West Avenue on the west and Grand Avenue on the east. The site is developed on the north with multi-family apartment buildings. Commercial businesses and light industry border the perimeter of the southern one-half of the site.

The site is located about three-fourths of a mile from the Fox River. Street gutters and storm sewers divert runoff from the site and adjoining areas, to the river. Surface water sampling, therefore, was not proposed.

The southern portion of the site was toured and visually inspected. This part of the site is open, relatively flat, and grass covered. Some vegetated mounds of soil were apparent on the southeast corner of the site. Along the west boundary the City of Waukesha is dumping sand, soil, and other material to reduce runoff and subsequent ponding on adjacent properties along West Avenue. A two foot final cover was reportedly placed on the landfill. Some isolated areas of potential stressed vegetation and areas void of vegetation were observed. Potential surface soil sampling locations were proposed in these areas.

Permission was obtained to access the northern portion of the site. This portion of the site was not graded as well as the south parcel. The area is flat in some areas and gently rolling in others. Some isolated mounds and depressions were visible. This area was closed first, therefore, there are some areas where mature trees and shrub species exist. Some isolated areas of concrete rubble were observed. No other types of exposed waste material were apparent.

High density residential development is located on, and adjacent to, the northern part of the site. Severe subsidence was apparent within the parking lot serving the apartment buildings along Carlton Place. At least two apartment building foundations showed symptoms of subsidence including multiple fractures and large gaps (re-mortared) in the brick as well as distortion of the foundation. Sheet metal vent pipes (used previously to dissipate methane gas in the buildings foundations) were observed at the end walls of two apartment structures.

In some of the isolated wooded areas there is evidence of child/recreation activities. Fire pits and lean-tos were observed. A neighbor in an on-site apartment building stated that some grass fires started by children were found difficult to extinguish because methane gas venting naturally from the site was apparently ignited, and re-ignited.

The area in the vicinity of the landfill is served by the City of Waukesha municipal water supply system. Two of the ten Waukesha municipal wells are located about one-half and one mile from the site. The Town of Waukesha is located directly adjacent to the site. Although a portion of the town near the Waukesha City limits is served by the municipal water supply, a cluster of approximately two dozen shallow private wells serving residences and some small businesses was determined southwest of the site. The closest water supply wells were observed about 300 feet from the landfill. Three existing water supply wells located near the southwest corner of the site were proposed as potential groundwater sampling locations.

The Waukesha Sanitary Landfill does not have a groundwater monitoring system, clay liner, or leachate collection system. A drilling SSI was proposed in order to determine if the facility is causing a release to the groundwater pathway.

Monitoring well locations were chosen along the east and west perimeter of the site based upon the regional groundwater flow direction (west) and the locations of the waste disposal areas. Proposed locations of the monitoring wells were skewed to the northwest with respect to the site because two monitoring points already existed west and southwest of the site. Potential down-gradient well locations were selected along the west property boundary.

### **3.4 SSI DRILLING ACTIVITIES**

The WDNR contracted with an engineering firm in early 1990 to perform drilling activities at the Waukesha Sanitary Landfill site. The scope of work for the drilling SSI included; completing four soil borings, instrumenting four monitoring wells (including one piezometer) and some limited in-field VOC screening of soil samples. Selected split spoon samples were also submitted to a contract laboratory for analysis. The drilling activities were completed using currently accepted methods and in compliance with all applicable State of Wisconsin regulations.

The objectives of the drilling SSI were as follows:

#### **General:**

- 1) To determine the potential threat to drinking water supplies and sensitive ecosystems. 2) To determine if further short term emergency actions are necessary to protect public health, safety or welfare, or the environment. 3) To collect critical information necessary to rank and prioritize the facility for future long term response actions by federal, state or local governments.

Additional information was also needed to:

- 1) To describe the stratigraphy beneath the site. 2) To obtain groundwater samples and document groundwater quality down gradient from the landfill. 3) To determine local groundwater flow direction and gradient. 4) To examine potential contaminant migration pathways in subsurface soils.

### **3.5 SAMPLING PROCEDURES**

Samples were collected by the WDNR sampling team at some of the locations determined during the previous reconnaissance inspection to determine levels of U.S. EPA Target Compound List (TCL) compounds and U.S. EPA Target Analyte List (TAL) analytes present at the site. The TCL, TAL, and Contract Laboratory Program (CLP) quantitation/detection limits are provided in the laboratory analysis data package and is available at the Wisconsin Department of Natural Resources Office at 101 South Webster Street, Madison, Wisconsin.

Field work for the monitoring well installation and soil boring program was begun on August 15, 1990 and completed on August 18, 1990. Difficulties were encountered during the instrumentation of piezometer MW-3. Additionally, high levels of organic vapors were encountered during the completion of soil boring MW-4 and instrumentation of the respective monitoring device. Monitoring wells MW-1, MW-2, and MW-3 were developed on August 20, 1990. Monitoring device MW-4 was not developed due to the high concentrations of organic compounds.

On September 18, 1990, Wisconsin Department of Natural Resources employees began purging five monitoring wells and one monitoring sump in preparation for sampling later the day. (See Figure 3-1 for monitoring well locations). On September 18, 1990, WDNR employees collected groundwater samples from the five monitoring wells (samples S07 through S11, and S14) and the monitoring sump. Photographs of the SSI sampling locations are available in Appendix C. On September 18, 1990 WDNR also collected two private water supply well samples from two nearby private businesses adjacent to the site (samples S12 and S13).

Four surface soil samples (samples S01, S02, S03, and S05) were collected on September 19, 1990 at potential areas of stressed vegetation. A potential background sample (S05) was collected in a vegetated area west of the site. This location was selected because it was across from a public street and remote from known areas of waste disposal. See Figure 3-2 for soil sampling locations.

A trip blank, rinse blank, duplicate, and matrix spike duplicate were also collected of groundwater in accordance with U.S. EPA quality assurance/quality control requirements. Samples were not split with the site owners because the offer was declined. As directed by U.S. EPA, all groundwater and soil samples were analyzed for TCL compounds by Environmental Control Technical Corp., Ann Arbor Michigan, and TAL analytes by Chem Tech Consulting Group, New York, New York.

All subsurface soil samples were analyzed for TCL compounds by ENCOT, of Ann Arbor, Michigan, and for TAL analytes by CEIMIC, of Narragansett, Rhode Island.

#### Monitoring Well Sampling Procedure:

Groundwater samples indicated as S07 through S11, and S14 (also identified as MW-1 Scopp Electric, MW-3, MW-2, PDQ, and MW-4, respectively) were collected from each monitoring point. A duplicate groundwater sample was collected from MW-3, (D09). The monitoring well locations were selected on the basis of the apparent groundwater flow

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direction and with respect to the location of known areas of waste disposal. Groundwater flow direction was suspected to be generally west, therefore, monitoring well MW-1 (station S07) was selected as the up-gradient sample location. Monitoring wells MW-2, MW-3, and Scopp Electric, representing stations S10, S09 and S08 respectively, were selected because they were suspected to be hydraulically down gradient from the waste disposal areas. See Figure 3-1 for monitoring well locations.

The monitoring wells were purged on September 18, 1990. A minimum of four static water volumes were purged from each well or the well was purged dry. All monitoring wells provided sufficient water volumes for sampling. The samples were collected using dedicated stainless steel or teflon bailers and dedicated polypropylene rope for each monitoring well sampled. Water from the bailer was transferred directly into each sample bottle using a teflon bottom emptying device. Specific details for monitoring well sampling procedures are described in the Superfund Site Sampling Plan - Waukesha Sanitary Landfill (WDNR, October 1990).

Standard WDNR decontamination procedures were adhered to during collection of all monitoring well samples. The procedures included cleaning all sampling equipment with a solution of detergent (Alconox) and tap water, a tap water rinse, and a triple rinse with distilled water in the laboratory. A separate bailer was dedicated to each well. This eliminated the need to decontaminate the bailers in the field. All monitoring well samples were packaged and shipped in accordance with U.S. EPA required procedures. Complete description of any field decontamination procedures that were conducted are included in the Superfund Site Sampling Plan - Waukesha Sanitary Landfill 1990.

Water Supply Well Sampling Procedures:

Table 3-1  
ADDRESSES OF WATER SUPPLY WELL SAMPLING LOCATIONS

Sample	Address
S12	non responsive Waukesha, WI- 53186
S13	non responsive Waukesha, WI 53186

The water supply well samples were collected in accordance with the procedures outlined in WDNR's Groundwater Sampling Procedures Guidelines, February 1987. The procedures are summarized as follows:

Water supply samples will be taken as close to the pump possible and before the water softener, water heater, or pressure tank, if possible. Any aerators, filters, or other devices from the tap will be removed before taking a sample. If the sample must be taken from an outside tap, any hoses will be removed before taking a sample. If the sample is collected from the well side of the pressure tank, the pump will be switched on, and the water allowed to run from the tap for at least two minutes prior to sample collection. If the sample is collected on the plumbing side of the pressure tank, the water will be allowed to run at least five minutes prior to sample collection to flush out water in the pressure tank, the water will be allowed to run at least five minutes prior to sample collection to flush out water in the pressure tank and cycle the water pump. The water flow will be restricted to a thin stream during sample collection for VOCs to reduce aeration.

All water supply well samples were packaged and shipped in accordance with U.S. EPA Contract Lab Program procedures.

#### Subsurface Soil Sampling Procedure:

All subsurface soil samples were obtained using standard undisturbed soil sample techniques. A Department authorized contractor was responsible for the collection of all samples submitted for laboratory analysis to the extent identified in the drilling scope of work for the Waukesha Sanitary Landfill.

Upon collection of the soil sample with the split spoon sampler, the samples were field screened in the split spoon sampler with an organic vapor detector. The samples were then placed into sample bottles by the contractor for a second organic vapor screening after an equilibration period in the bottles. After a second organic vapor screening, selected samples for CLP laboratory analysis were placed into dedicated stainless steel mixing pans, mixed, and placed into the appropriate sample jars with dedicated stainless steel spoons.

Sample S01 was obtained from soil boring MW-1 at the rear lot of 1312 S. Grand Avenue. The volatile organics sample was a grab sample collected from a depth interval of 8 to 10 feet. A semi volatile organics sample was a composite sample collected at a depth interval of 10 to 12 feet. The grab sample for metals was collected from a depth interval of 10 to 18 feet. Sample S02 was obtained from soil boring MW-2 at the intersection of Estberg Avenue and Carlton Place. The metals sample was a grab sample collected from a depth interval of 36 to 38 feet. A volatile and semi volatile organics sample were connected by compositing samples obtained from depth intervals at 34 to 36 feet and 36 to 38 feet. Sample S03 was collected from soil boring MW-3 located adjacent to Carlton Place. The composite sample, analyzed for volatile organics, was collected from a depth interval of 30 to 34 feet.



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A composite sample, analyzed for semi-volatile organics, was also collected from the same depth interval of 30 to 34 feet. A metals sample from boring MW-3 was collected as a grab sample from a depth interval of 32 to 34 feet.

All down-hole drilling and sampling equipment was steam-cleaned between each boring location according to the drilling scope of work. The split spoon sampler was washed and then rinsed with tap water between the collection of each soil sample. Procedures for cleaning the stainless steel trowels included washing with a solution ofalconox and tap water, a tap water rinse, an acid rinse, and a triple rinse with distilled water.

#### Surface Soil Sampling Procedure:

Surface soil samples identified as S01, S02, and S03 were collected from locations where surface soils indicated sparse or stressed vegetation. Surface soil sampling locations are identified on Figure 3-2.

Sample S01 was collected within an area of sparse/absent vegetation at the south central portion of the site approximately 200 feet west of the east property boundary and approximately 350 to 400 feet south of Hoover Drive. A dedicated stainless steel trowel was used to excavate a depression up to six inches deep. A small deflection of the organic vapor detector was observed at this location.

Sample S02 was collected within an area of sparse vegetation on the south central portion of the site. The sample was collected approximately 105 feet west of the facility east property boundary and approximately 275 feet south of Hoover Drive. A dedicated stainless steel trowel was used to excavate a depression from the surface to a depth of six inches. A duplicate soil sample was also collected from this location.

Sample S03 was collected in an area of sparse/absent vegetation on the south-central part of the site. The sample was collected 98 feet east of the west property boundary and 52 feet south of Hoover Drive. A dedicated stainless steel trowel was used to excavate an eight inch diameter depression to a depth of five inches.

Sample S04 was collected near the railroad tracks on the northwest portion of the site along Carlton Place. The sampling location was determined to be non-representative of background conditions and was discarded.

Sample S05 was a potential background surface soil sample collected near the northwest corner of the site. The sample was collected ten feet west of S. West Avenue and directly west of the driveway serving the

locations. A dedicated stainless steel hand trowel was used to excavate a shallow depression no deeper than six inches at each sample location. Sample material from the excavation was then transferred directly into the sample jars.

Standard WDNR decontamination procedures were adhered to during collection of all soil samples. The laboratory decontamination procedures included cleaning the stainless steel trowel with a solution of detergent (Alconox) and tap water, a tap water rinse, an acid rinse, and a triple rinse with distilled water. Dedicated stainless steel hand trowels were used at each soil sampling location. This equipment, therefore, did not require field decontamination. All samples were packaged and shipped in accordance with U.S. EPA required procedures. Descriptions of other field decontamination procedures that were conducted are included in the Superfund Site Plan, Waukesha Sanitary Landfill (WDNR, 1990).

## **4. ANALYTICAL RESULTS**

### **4.1 INTRODUCTION**

This section includes results of chemical analysis of WDNR collected groundwater samples and soil samples for TCL compounds and TAL analytes.

### **4.2 RESULTS OF CHEMICAL ANALYSIS OF WDNR COLLECTED SAMPLES**

Analysis of groundwater and soil samples revealed substances from the following groups of TCL compounds and TAL analytes: volatiles, semi volatiles, pesticides, PCBs, metals, common soil constituents, and common groundwater constituents (see Table 4-1 for the complete sample chemical analysis results).

Laboratory analytical data of all sample analysis as well as Contract Laboratory Program (CLP) quantitation/detection limits are available at the Wisconsin Department of Natural Resources Office at 101 South Webster Street, Madison, Wisconsin.

WAUKESHA CASE #14928

## VOLATILE ANALYSIS OF WATER SAMPLES

RECEIVED BY ENCOTEC-AA LAB ON 9/20/90

Sampling Date	9/18/90	LOW	13:37	13:45	13:45	14:30	14:30	14:25	15:10	15:10	15:17
Sample Location ID		WATER	S07	S08	S08	S09	S09	S10	S11	S11	S12
		CRDL									
Traffic Report Number		(UG/L)	ELK68	ELK69	ELK69RE	ELK70	ELK70DL	ELK71	ELK72	ELK72DL	ELK73
Dilution Factor			1	1	1	1	5	1	1	50	1
Compound \ Level			LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Number of TICs found:			2	0	0	0	1	2	5	0	2
Vinyl Chloride	10			8 J	6 J	430 E	440 DJ			UJ	
Chloroethane	10			4 J	4 J	270 E	290 DJ	2 J		UJ	
Methylene Chloride	5				UJ	1 J	UJ			UJ	
Carbon Disulfide	5				UJ		UJ			UJ	2 J
1,1-Dichloroethene	5		5 UJ	5 UJ	5 UJ	5 UJ	25 UJ	5 UJ	5 UJ	50 UJ	5 UJ
1,1-Dichloroethane	5				UJ	170	140 DJ	2 J		UJ	
(Total)-1,2-Dichloroethene	5				6 J	250 E	230 DJ			UJ	
2-Butanone	10				UJ		UJ		3100 E	4500 DJ	
1,1,1-Trichloroethane	5				UJ	22	19 DJ			UJ	
Trichloroethene	5		5 UJ	5 UJ	5 UJ	4 J	25 UJ	5 UJ	5 UJ	250 UJ	5 UJ
1,1,2-Trichloroethane	5			1 J	UJ		UJ			UJ	
Benzene	5			13	14 J	40 J	35 DJ		14 J	UJ	
4-Methyl-2-Pentanone	10				UJ		UJ			UJ	
2-Hexanone	10				UJ		UJ			UJ	
Tetrachloroethene	5				UJ		UJ			UJ	
Toluene	5		5 UJ	5 UJ	5 UJ	8 J	11 DJ	5 UJ	11 J	250 UJ	5 UJ
Chlorobenzene	5		5 UJ	4 J	4 J	46 J	38 DJ	2 J	5 UJ	250 UJ	5 UJ
Ethylbenzene	5			3 J	3 J	29	23 DJ			UJ	
Total Xylenes	5			19	16 J	13	9 DJ			UJ	

REMARKS: \*VOA=VOLATILES ONLY ANALYZED

DATA USED FOR QUALIFICATION SHOULD BE TAKEN FROM THE RE AND DL SAMPLES. ALL NON-DETECTS IN THE RE AND DL SAMPLES SHOULD BE ESTIMATED (UJ).

RESULTS OF CHEMICAL ANALYSES  
OF SSI SAMPLES

TABLE 4-1

WAUKESHA CASE #14928

VOLATILE ANALYSIS OF WATER SAMPLES (CONTINUED) RECEIVED BY ENCOTEC-AA LAB ON 9/20/90

TABLE 4-1 (Cont)

20

Sampling Date	9/18/90	LOW	16:05	16:05	16:10	16:10	14:30	14:30	15:35	15:35	10:00
Sample Location ID		WATER	S13	S13	S14	S14	D09	D09	R01	R01	R02
		CRDL									
Traffic Report Number		(UG/L)	ELK74	ELK74DL	ELK75	ELK75DL	ELK76	ELK76DL	ELK77	ELK77RE	ELK78
Dilution Factor			1	10	1	100	1	5	1	1	1
Compound \ Level			LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Number of TICs found:			8	2	3	0	2	1	0	0	1
Vinyl Chloride	10		UJ	UJ	8 J	UJ	470 E	320 DJ		UJ	
Chloroethane	10		UJ	UJ		UJ	340 E	250 DJ		UJ	
Methylene Chloride	5		UJ	UJ	11	UJ	2 J	UJ		UJ	1 J
Carbon Disulfide	5		UJ	UJ		UJ		UJ		UJ	
1,1-Dichloroethene	5		5 UJ	50 UJ	5 UJ	500 UJ	5 UJ	25 UJ	5 UJ	5 UJ	5 UJ
1,1-Dichloroethane	5		UJ	UJ		UJ	180	150 DJ		UJ	
(Total)-1,2-Dichloroethene	5		UJ	UJ		UJ		220 DJ		UJ	
2-Butanone	10		UJ	UJ	97	670 DJ		UJ		UJ	
1,1,1-Trichloroethane	5		UJ	UJ		UJ	23	18 DJ		UJ	
Trichloroethene	5		5 UJ	50 UJ	4 J	500 UJ	5 UJ	25 UJ	5 UJ	5 UJ	5 UJ
1,1,2-Trichloroethane	5		UJ	UJ		UJ		UJ		UJ	
Benzene	5		880 EJ	1100 DJ	7	UJ	45 J	38 DJ		UJ	
4-Methyl-2-Pentanone	10		UJ	UJ	220 E	UJ		UJ		UJ	
2-Hexanone	10		UJ	UJ	10	UJ		UJ		UJ	
Tetrachloroethene	5		UJ	UJ		120 DJ		UJ		UJ	
Toluene	5		8 J	12 DJ	5 J	1600 DJ	10 J	7 DJ	5 UJ	5 UJ	5 UJ
Chlorobenzene	5		5 UJ	50 UJ	5 UJ	500 UJ	46 J	36 DJ	5 UJ	5 UJ	5 UJ
Ethylbenzene	5		UJ	UJ	1400 E	1200 DJ	33	22 DJ		UJ	
Total Xylenes	5		1 J	UJ	9400 E	6800 DJ	31	9 DJ		UJ	

REMARKS: \*VOA=VOLATILES ONLY ANALYZED

\*VOA

DATA USED FOR QUALIFICATION SHOULD BE TAKEN FROM THE RE AND DL SAMPLES. ALL NON-DETECTS IN THE RE AND DL SAMPLES SHOULD BE ESTIMATED (UJ).

WAUKESHA CASE #14928

## VOLATILE ANALYSIS OF SOIL SAMPLES

RECEIVED BY ENCOTEC-AA LAB ON 9/20/90

Sampling Date	9/19/90	LOW	11:56	12:35	12:30	14:08	12:35
Sample Location ID	SOIL/SED	S01	S02	S03	S05	D02	
	CRDL						
Traffic Report Number	(UG/KG)	ELK61	ELK62	ELK63	ELK65	ELK67	
Percent Moisture	100 %	22 %	21 %	17 %	19 %	19 %	
Dilution Factor		1	1	1	1	1	
Compound \ Level		LOW	LOW	LOW	LOW	LOW	
Number of TICs found:		0	0	0	0	0	
Methylene Chloride	5			2 J	2 J		
Acetone	10		18				
2-Butanone	10	13	12 J				
Moisture Adjustment for CRDL = 5		6	6	6	6	6	
Moisture Adjustment for CRDL = 10		13	13	12	12	12	

## DATA QUALIFIER DEFINITIONS (ORGANICS):

- J = The associated value is an estimated value. This flag is used when the mass spectral data indicate the presence of a compound that meets the identification criteria, but the result is less than the sample quantitation limit. For example, if the sample quantitation limit is 10 ug/l, but a concentration of 3 ug/l is calculated, report it as 3J. The sample quantitation limit must be adjusted for both dilution and percent moisture.
- R = The data are unusable. (Note: Compound may or may not be present.)
- D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag, the "DL" suffix is appended to the sample number and all concentration values are flagged with the "D" flag.
- E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and re-analyzed according to the specifications. All such compounds with a response greater than full scale should have the concentration flagged with an "E" for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported. The form for the diluted sample shall have the "DL" suffix appended to the sample number.
- X = In the Pesticide data, the X flag denotes manually entered data. This always occurs on multi-component quantitations and sometimes occurs on individual pesticides when the analyst had to correct the integration of a peak.

TABLE 4-1 (Cont)

WAUKESHA CASE #14928

## SEMI-VOLATILE ANALYSIS OF WATER SAMPLES

RECEIVED BY ENCOTEC-AA LAB ON 9/20/90

Sampling Date	9/18/90	LOW	13:37	13:37	13:45	14:30	14:25	15:10	15:17	16:05
Sample Location ID		WATER	S07	S07	S08	S09	S10	S11	S12	S13
		CRDL								
Traffic Report Number		(UG/L)	ELK68	ELK68RE	ELK69	ELK70	ELK71	ELK72	ELK73	ELK74
Dilution Factor			1	1	1	1	1	1	1	1
Compound \ Level			LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Number of TICs found:			0	0	18	12	1	4	1	0
Phenol	10									3 J
1,2-Dichlorobenzene	10					1 J				
Benzoic Acid	50									
Naphthalene	10				11			2 J		
2-Methylnaphthalene	10									
Diethylphthalate	10				10					
bis(2-Ethylhexyl)Phthalate	10				6 J	2 J	2 J			

WAUKESHA CASE #14928

## SEMI-VOLATILE ANALYSIS OF WATER SAMPLES (CONTINUED)

RECEIVED BY ENCOTEC-AA LAB ON 9/20/90

Sampling Date	9/18/90	LOW	16:10	14:30	15:35
Sample Location ID		WATER	S14	D09	R01
		CRDL			
Traffic Report Number		(UG/L)	ELK75	ELK76	ELK77
Dilution Factor			50	1	1
Compound \ Level			LOW	LOW	LOW
Number of TICs found:			20	20	4
Phenol	10		UJ		
1,2-Dichlorobenzene	10		UJ	1 J	
Benzoic Acid	50		UJ	3 J	
Naphthalene	10		5400 J	10	2 J
2-Methylnaphthalene	10		320 J		
Diethylphthalate	10		UJ		
bis(2-Ethylhexyl)Phthalate	10		UJ		

TABLE 4-1 (Cont)



WAUKESHA CASE #14928

## SEMI-VOLATILE ANALYSIS OF SOIL SAMPLES

RECEIVED BY ENCOTEC-AA LAB ON 9/20/90

Sampling Date	9/19/90	LOW	11:56	12:35	12:30	14:08	12:35
Sample Location ID	SOIL/SED	S01	S02	S03	S05	D02	
	CRDL						
Traffic Report Number	(UG/KG)	ELK61	ELK62	ELK63	ELK65	ELK67	
Percent Moisture	100 %	22 %	21 %	17 %	19 %	19 %	
Dilution Factor		1	1	1	1	1	
pH		6.8	6.8	6.9	7.3	7.0	
Compound \ Level		LOW	LOW	LOW	LOW	LOW	
Number of TICs found:		13	10	13	7	9	
4-Chloro-3-Methylphenol	330	850 UJ	840 UJ	800 UJ	810 UJ	810 UJ	
4-Nitrophenol	1600	4100 UJ	4100 UJ	3900 UJ	4000 UJ	4000 UJ	
Phenanthrene	330			1100	170 J		
Anthracene	330			190 J			
Fluoranthene	330	110 J		2100	450 J	140 J	
Pyrene	330	100 J		1700	410 J	140 J	
Benzo(a)Anthracene	330			1100	160 J	90 J	
Chrysene	330			1200	210 J	97 J	
Benzo(b)Fluoranthene	330	120 J		2000	190 J	150 J	
Benzo(k)Fluoranthene	330			2400	390 J	210 J	
Benzo(a)Pyrene	330			1700	180 J	120 J	
Indeno(1,2,3-cd)Pyrene	330			670 J			
Dibenz(a,h)Anthracene	330			210 J			
Benzo(g,h,i)Perylene	330			1000	92 J		
Moisture Adjustment for CRDL = 330		850	840	800	810	810	
Moisture Adjustment for CRDL = 1600		4100	4100	3900	4000	4000	

TABLE 4-1 (Cont)

WAUKESHA CASE #14928

## PESTICIDE ANALYSIS OF SOIL SAMPLES

RECEIVED BY ENCOTEC-AA LAB ON 9/20/90

TABLE 4-1 (Cont)

24

Sampling Date	9/19/90	LOW	11:56	12:35	12:30	14:08	12:35
Sample Location ID	SOIL/SED	S01	S02	S03	S05	D02	
	CRDL						
Traffic Report Number	(UG/KG)	ELK61	ELK62	ELK63	ELK65	ELK67	
Percent Moisture	100 %	22 %	21 %	17 %	19 %	19 %	
Dilution Factor		1	1	4	8	1	
pH		6.8	6.8	6.9	7.3	7.0	
Pesticides/PCBs \ Level		LOW	LOW	LOW	LOW	LOW	
Dieldrin	16	41 UJ	41 UJ	150 UJ	320 UJ	40 UJ	
4,4'-DDE	16				2400 X		
Endrin	16	41 UJ	41 UJ	150 UJ	320 UJ	40 UJ	
4,4'-DDD	16			71 J			
4,4'-DDT	16	41 UJ	41 UJ	150 UJ	1600 J	40 UJ	
Aroclor-1254	160	2200 X		1700 X			
Aroclor-1260	160	1200 X		1500 JX			
Moisture Adjustment for CRDL = 8		21	20	77	160	20	
Moisture Adjustment for CRDL = 16		41	41	150	320	40	
Moisture Adjustment for CRDL = 80		210	200	770	1600	200	
Moisture Adjustment for CRDL = 160		410	410	1500	3200	400	

WAUKESHA CASE #14928

PESTICIDE ANALYSIS OF WATER SAMPLES

RECEIVED BY ENCOTEC-AA LAB ON 9/20/90

Sampling Date	9/18/90	LOW	13:37	13:45	14:30	14:25	15:10	15:17	16:05
Sample Location ID		WATER	S07	S08	S09	S10	S11	S12	S13
		CRDL							
Traffic Report Number		(UG/L)	ELK68	ELK69	ELK70	ELK71	ELK72	ELK73	ELK74
Dilution Factor		1	1	1	1	1	1	1	1
pH			7.0	7.0	7.0	7.0	7.0	7.0	7.0
Pesticides/PCBs \ Level			LOW	LOW	LOW	LOW	LOW	LOW	LOW
Lindane	0.050	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ
Heptachlor	0.050	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ
Aldrin	0.050	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ
Dieldrin	0.10	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ
Endrin	0.10	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ
4,4-DDT	0.10	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ
Aroclor-1254	160								
Aroclor-1260	160								

TABLE 4-1 (Cont)

WAUKESHA CASE #14928

PESTICIDE ANALYSIS OF WATER SAMPLES (CONTINUED) RECEIVED BY ENCOTEC-AA LAB ON 9/20/90

Sampling Date	9/18/90	LOW	16:10	16:10	14:30	15:35
Sample Location ID		WATER	S14	S14	D09	R01
		CRDL				
Traffic Report Number		(UG/L)	ELK75	ELK75DL	ELK76	ELK77
Dilution Factor		1	1	5	1	1
pH			7.0	7.0	7.0	7.0
Pesticides/PCBs \ Level			LOW	LOW	LOW	LOW
Lindane	0.050	0.050 UJ	0.25 UJ	0.050 UJ	0.050 UJ	
Heptachlor	0.050	0.050 UJ	0.25 UJ	0.050 UJ	0.050 UJ	
Aldrin	0.050	0.050 UJ	0.25 UJ	0.050 UJ	0.050 UJ	
Dieldrin	0.10	0.10 UJ	0.5 UJ	0.10 UJ	0.10 UJ	
Endrin	0.10	0.10 UJ	0.5 UJ	0.10 UJ	0.10 UJ	
4,4-DDT	0.10	0.10 UJ	0.5 UJ	0.10 UJ	0.10 UJ	
Aroclor-1254	1.0	10 X	11 DX			
Aroclor-1260	1.0	78 X	64 DX			

TABLE 4-1 (Cont)

TABLE 4-1 (Cont)

## WAUKESHA CASE #14928 --- NOTES ON ORGANIC QUALIFIERS

Water Volatiles

Samples ELK69 and ELK77 had surrogates that were outside the quality control limits. These samples were reanalyzed. Samples ELK70, ELK72, and ELK74-76 had component concentrations which exceeded the instrument detection limit. These samples were diluted and reanalyzed. Data used for qualification should be taken from the re-analyzed samples and estimated (J) for positive results and estimated (UJ) for non-detects.

The water volatile method blank (VBLK3) was found to contain only Acetone. No TICs (Tentatively Identified Compounds) were detected. Samples associated with this blank are ELK68-78. The water volatile method blank (VBLK4) was found to contain Methylene Chloride, Acetone and 2-Hexanone. No TICs were detected. Samples associated with this blank are ELK69RE, 70DL, 74DL, 75DL, 76DL and 77RE. The water volatile method blank (VBLK5) was found to contain Methylene Chloride, Acetone and Toluene. No TICs were detected. Sample associated with this blank is ELK72DL.

The associated samples that contain the common contaminants at less than 10 times the amount in the related blank have been qualified as non-detects (U) in those samples for these contaminants and, therefore, are not contained in the data summary tables. If the concentration is greater than 10 times the amount in the blank, the results are qualified as estimated (J). Associated samples that contain compounds which are not considered common contaminants at less than five times the amount found in the related blank are qualified as non-detects (U) and, therefore, are not contained in the data summary tables. If the concentration is greater than five times the amount in the blank, the results are qualified as estimated (J).

The RPD (Relative Percent Difference) for 1,1-Dichloroethene and matrix spike for Benzene in sample ELK74 is out of control. All data in sample ELK74 is estimated (J) for positive results and estimated (UJ) for non-detects. These compounds in all remaining water volatile samples are estimated (J) for positive results and estimated (UJ) for non-detects.

The matrix spike and RPD (Relative Percent Difference) for 1,1-Dichloroethene, Trichloroethene, Toluene, and Chlorobenzene in sample ELK74DL are out of control. All data in sample ELK74DL is estimated (J) for positive results and estimated (UJ) for non-detects. These compounds in all remaining water volatile samples are estimated (J) for positive results and estimated (UJ) for non-detects.

TABLE 4-1 (Cont)

Soil Volatiles

The soil volatile method blank (VBLK1) was found to contain Acetone and Toluene. No TICs were detected. Samples associated with this blank are ELK63, 65, and 67. The soil volatile method blank (VBLK2) was found to contain Methylene Chloride, Toluene, and Chlorobenzene. No TICs were detected. Samples associated with this blank are ELK61 and ELK62.

The associated samples that contain the common contaminants at less than 10 times the amount in the related blank have been qualified as non-detects (U) in those samples for these contaminants and, therefore, are not contained in the data summary tables. If the concentration is greater than 10 times the amount in the blank, the results are qualified as estimated (J). Associated samples that contain compounds which are not considered common contaminants at less than five times the amount found in the related blank are qualified as non-detects (U) and, therefore, are not contained in the data summary tables. If the concentration is greater than five times the amount in the blank, the results are qualified as estimated (J).

Water Semi-Volatiles

ELK68 was reanalyzed due to three surrogates outside quality control limits. ELK75 had all surrogates diluted out, but reanalysis was not performed. In sample ELK75, the data is qualified as estimated (UJ) for non-detects and as estimated (J) for positive results.

The water semi-volatile blank (SBLK1) contained no TCL compounds and two TICs were detected. Samples associated with this blank are ELK68-77.

The water semi-volatile blank (SBLK4) contained no TCL compounds and three TICs were detected. Sample associated with this blank is ELK68RE.

The associated samples that contain the common contaminants at less than 10 times the amount in the related blank have been qualified as non-detects (U) in those samples for these contaminants and, therefore, are not contained in the data summary tables. If the concentration is greater than 10 times the amount in the blank, the results are qualified as estimated (J). Associated samples that contain compounds which are not considered common contaminants at less than five times the amount found in the related blank are qualified as non-detects (U) and, therefore, are not contained in the data summary tables. If the concentration is greater than five times the amount in the blank, the results are qualified as estimated (J).

TABLE 4-1 (Cont)

Soil Semi-Volatiles

The low level soil semi-volatile blank (SBLK2) was found to contain no TCLs (Target Compound List), but two TICs were detected.

The associated samples that contain the common contaminants at less than 10 times the amount in the related blank have been qualified as non-detects (U) in those samples for these contaminants and, therefore, are not contained in the data summary tables. If the concentration is greater than 10 times the amount in the blank, the results are qualified as estimated (J). Associated samples that contain compounds which are not considered common contaminants at less than five times the amount found in the related blank are qualified as non-detects (U) and, therefore, are not contained in the data summary tables. If the concentration is greater than five times the amount in the blank, the results are qualified as estimated (J).

The RPD (Relative Percent Difference) for 4-chloro-3-methylphenol and 4-Nitrophenol and the matrix spike for 4-Nitrophenol are out of control for the soil semi-volatile samples ELK61-63, 65, and 67. All samples for these components are estimated (J) for positive results and estimated (UJ) for non-detects.

Soil Pesticides

Dibutylchlorendate outside quality control limits for ELK61-63, 65, and 67.

The soil matrix spike for 4,4'-DDT, Dieldrin, and Endrin are out of control. All data for these components are estimated (J) for positive results and estimated (UJ) for non-detects.

Water Pesticides

Dibutylchlorendate outside quality control limits for ELK75.

The water matrix spike for Endrin and the RPD for Lindane, Aldrin, Heptachlor, Dieldrin, and 4,4'-DDT are out of control. All data for these components are estimated (J) for positive results and estimated (UJ) for non-detects.

WAUKESHA CASE #14928

## METALS ANALYSIS OF WATER SAMPLES

SAMPLES RECEIVED 9/20/90 BY CHEMTECH

Sampling Date	9/18/90	LOW	LOW	13:37	13:34	14:30	14:25	15:10	15:17	16:05	16:10	15:35	14:30
Sample Location ID		WATER	WATER	S07	S08	S09	S10	S11	S12	S13	S14	R01	D09
		CRDL	IDL										
Traffic Report No.		(UG/L)	(UG/L)	MEKK68	MEKK69	MEKK70	MEKK71	MEKK72	MEKK73	MEKK74	MEKK75	MEKK76	MEKK77
Inorganic Elements \ Level				LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Aluminum	200	69	92.4 BJ	173 BJ	198 BJ	103 BJ	162 BJ	92.4 BJ	89.3 BJ	756	124 BJ	107 BJ	
Arsenic	10	3	3.0 UJ	10.7 J	6.6 BJ	15.7		4.3 B	51.3	3.7 B			
Barium	200	29	137 B	564	371	216	205	104 B	165 B	1830	353		
Beryllium	5	2		3.3 B		4.6 B				2.4 B			
Cadmium	5	5					13.6	16.4		21.1			
Calcium	5000	870	128000	139000	124000	134000	123000	133000	128000	366000	125000		
Chromium	10	9								774			
Copper	25	21						35.4	39.1				
Iron	100	62		30500	6510	7220	12800	1470	955	6710	5930	112	
Lead	3	2			4.4		5.9 J	33.2	43.6	215		2.0 UJ	
Magnesium	5000	770	54800	60600	98600	81800	39600	54600	62500	216000	99700		
Manganese	15	12	138 J	409 J	247 J	321 J	636 J	240 J	312 J	3610 J	337 J	169 J	
Mercury	0.2	0.2	1.2	0.44	0.27	0.27		0.39	0.44	0.27			
Potassium	5000	330	1300 BJ	24200 J	14100 J	12400 J	11600 J	1300 BJ	2300 BJ	6450 J	14500 J	330 UJ	
Selenium	5	4	R	R	R	R	R	R	R	R	R	R	
Silver	10	8	R	R	R	R	R	R	R	R	R	R	
Sodium	5000	3060	79000	95400	130000	141000	27800	61000	104000	322000	132000		
Thallium	10	4	4.0 UJ	4.0 UJ	4.0 UJ	4.0 UJ	4.0 UJ		4.0 UJ		4.0 UJ		
Zinc	20	11	11.0 UJ	17.5 BJ	37.0 J	66.6 J	45.8 J	46.5 J	268 J	663 J	11.0 UJ	11.0 UJ	
Color Before Analyses			Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Yellow	Colorless	Colorless	
Color After Analyses			Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Yellow	Colorless	Colorless	
Clarity Before/After Analyses			Clear/Clear	Clear/Clear	Clear/Clear	Clear/Clear	Clear/Clear	Clear/Clear	Clear/Clear	Cloudy/Cler	Clear/Clear	Clear/Clear	

REMARKS: \*PLD=Partial lab duplicate analyzed.

\*PLD

## DATA QUALIFIER DEFINITIONS (INORGANICS/METALS):

U = The material was analyzed for, but was not detected above the level of associated value. The associated value is either the sample quantitation limit or the sample detection limit.

UJ = The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

J = The associated value is an estimated quantity.

B = Concentration is greater than the IDL, but less than the CRDL. (IDL = Instrument Detection Limit; CRDL = Contract Required Detection Limit)

R = The data are unusable. (Note: Analyte may or may not be present.)

TABLE 4-1 (Cont)



WAUKESHA CASE #14928

## METALS ANALYSIS OF SOIL SAMPLES

SAMPLES RECEIVED 9/20/90 BY CHEMTECH

TABLE 4-1 (Cont)

31

Sampling Date	9/19/90	LOW	LOW	11:56	12:35	12:30	14:08	12:35
Sample Location ID		SOIL/SED	SOIL/SED	S01	S02	S03	S05	D02
Traffic Report Number		CRDL	IDL	MEKK61	MEKK62	MEKK63	MEKK65	MEKK67
Percent Solids		0 %	0 %	83.0 %	81.5 %	85.6 %	83.3 %	81.9 %
Inorganic Elements \ Level				LOW	LOW	LOW	LOW	LOW
Aluminum	40	13.8	10600	12600	5650	13900	13200	
Antimony	12	9.6	11.6 UJ	11.8 UJ	11.2 UJ	11.5 UJ	11.7 UJ	
Arsenic	2	0.6	3.7	5.3	6.6	9.9	5.5	
Barium	40	5.8	268	145	188	158	188	
Beryllium	1	0.4	0.59 B	1.4	1.0 B	1.6	1.2	
Calcium	1000	174	25400 J	30800 J	71200 J	7540 J	14100 J	
Chromium	2	1.8	187 J	17.6 J	124 J	17.9 J	21.7 J	
Cobalt	10	2.8	6.2 B	6.6 B	5.2 B	12.0 B	10.0 B	
Copper	5	4.2	174 J	16.5 J	174 J	23.0 J	21.0 J	
Iron	20	12.4	17000	17500	12700	19900	20200	
Lead	1	0.4	82.9	18.4	126	53.9	19.1	
Magnesium	1000	154	12900 J	17900 J	35800 J	4580 J	7710 J	
Manganese	3	2.4	434 J	513 J	428 J	1120 J	1030 J	
Mercury	0.2	0.2	1.00	0.40	0.85	0.68	0.27	
Nickel	8	5.4	29	18.3	27.1	16.2	19.2	
Potassium	1000	66	1080 BJ	883 BJ	864 BJ	1340 J	1000 BJ	
Selenium	1	0.8	R	9.8 R	R	R	R	
Silver	2	1.6	12.6 J	R	6.7 J	R	R	
Thallium	2	0.8	0.96 UJ		0.93 UJ	0.96 UJ	0.98 UJ	
Vanadium	10	4.8	31.8	33.2	21.3	37.7	36.2	
Zinc	4	2.2	647 J	61.8 J	659 J	102 J	79.6 J	
Color Before Analyses			Black	Black	Black	Black	Black	
Color After Analyses			Yellow	Yellow	Yellow	Yellow	Yellow	
Texture			Medium	Medium	Medium	Medium	Medium	

REMARKS: \*PLD=Partial lab duplicate analyzed. \*PLD

NOTE: The lab may not have complied with the Contract Required Detection Limits for Antimony (CRDL = 2.4 MG/KG) and/or Mercury (CRDL = .008 MG/KG).

WAUKESHA CASE #14928

METALS ANALYSIS-INDIVIDUAL INORGANIC SOIL CRDLs AND IDLs VALUES CORRECTED FOR % SOLIDS. (% SOLIDS = 100% - % MOISTURE CONTENT)

Sampling Date	8/27/90	LOW	LOW	11:56	12:35	12:30	14:08	12:35				
Sample Location ID		SOIL	SOIL	S01	S02	S03	S05	D02				
		/SED	/SED									
Traffic Report No		(MG/KG)	(MG/KG)	MEKK61	MEKK62	MEKK63	MEKK65	MEKK67				
Percent Solids		0 %	0 %	83.0 %	81.5 %	85.6 %	83.3 %	81.9 %				
		CRDL	IDL	CRDL IDL	CRDL IDL	CRDL IDL	CRDL IDL	CRDL IDL	CRDL IDL	CRDL IDL	CRDL IDL	CRDL IDL
Aluminum		40	13.8	48.19 16.63	49.08 16.93	46.73 16.12	48.02 16.57	48.84 16.85				
Antimony		12	9.6	14.46 11.57	14.72 11.78	14.02 11.21	14.41 11.52	14.65 11.72				
Arsenic		2	0.6	2.41 0.72	2.45 0.74	2.34 0.70	2.40 0.72	2.44 0.73				
Barium		40	5.8	48.19 6.99	49.08 7.12	46.73 6.78	48.02 6.96	48.84 7.08				
Beryllium		1	0.4	1.20 0.48	1.23 0.49	1.17 0.47	1.20 0.48	1.22 0.49				
Cadmium		1	1	1.20 1.20	1.23 1.23	1.17 1.17	1.20 1.20	1.22 1.22				
Calcium		1000	174	1204.82 209.64	1226.99 213.50	1168.22 203.27	1200.48 208.88	1221.00 212.45				
Chromium		2	1.8	2.41 2.17	2.45 2.21	2.34 2.10	2.40 2.16	2.44 2.20				
Cobalt		10	2.8	12.05 3.37	12.27 3.44	11.68 3.27	12.00 3.36	12.21 3.42				
Copper		5	4.2	6.02 5.06	6.13 5.15	5.84 4.91	6.00 5.04	6.11 5.13				
Iron		20	12.4	24.10 14.94	24.54 15.21	23.36 14.49	24.01 14.89	24.42 15.14				
Lead		1	0.4	1.20 0.48	1.23 0.49	1.17 0.47	1.20 0.48	1.22 0.49				
Magnesium		1000	154	1204.82 185.54	1226.99 188.96	1168.22 179.91	1200.48 184.87	1221.00 188.03				
Manganese		3	2.4	3.61 2.89	3.68 2.94	3.50 2.80	3.60 2.88	3.66 2.93				
Mercury		0.2	0.2	0.24 0.24	0.25 0.25	0.23 0.23	0.24 0.24	0.24 0.24				
Nickel		8	5.4	9.64 6.51	9.82 6.63	9.35 6.31	9.60 6.48	9.77 6.59				
Potassium		1000	66	1204.82 79.52	1226.99 80.98	1168.22 77.10	1200.48 79.23	1221.00 80.59				
Selenium		1	0.8	1.20 0.96	1.23 0.98	1.17 0.93	1.20 0.96	1.22 0.98				
Silver		2	1.6	2.41 1.93	2.45 1.96	2.34 1.87	2.40 1.92	2.44 1.95				
Sodium		1000	612	1204.82 737.35	1226.99 750.92	1168.22 714.95	1200.48 734.69	1221.00 747.25				
Thallium		2	0.8	2.41 0.96	2.45 0.98	2.34 0.93	2.40 0.96	2.44 0.98				
Vanadium		10	4.8	12.05 5.78	12.27 5.89	11.68 5.61	12.00 5.76	12.21 5.86				
Zinc		4	2.2	4.82 2.65	4.91 2.70	4.67 2.57	4.80 2.64	4.88 2.69				

NOTE: The lab may not have complied with the Contract Required Detection Limits for Antimony (CRDL = 2.4 MG/KG) and/or Mercury (CRDL = 0.008 MG/KG).

TABLE 4-1 (Cont)

TABLE 4-1 (Cont)

## WAUKESHA CASE #14928 --- NOTES ON INORGANIC QUALIFIERS

ALUMINUM (water) The duplicate audit for Aluminum (24.2%) was not flagged by the lab because the technical criteria for water (CRDL) was not exceeded. However, a CCB (Continuing Calibration Blank) contains Aluminum (79.1 ug/l). Samples MEKK68-74 and MEKK76-77 for Aluminum are estimated (J) due to contamination. Note that these same samples are also estimated (B) by the lab because the value is greater than the IDL and less than the CRDL.

ANTIMONY (soil) The matrix spike recovery for Antimony (38.5%) is out of control. All Antimony results are estimated (UJ) due to possible elevated detection limit.

ARSENIC (water) Sample MEKK68 for Arsenic was flagged (W) by the lab and is estimated (UJ) due to interference. Samples MEKK69 and MEKK70 for Arsenic were flagged (W) by the lab and are estimated (J) due to interference.

CALCIUM (soil) The RPDs (Relative Percent Differences) for Calcium (74.4%) are out of control. All Calcium data are estimated (J) due to poor precision.

CHROMIUM (soil) The matrix spike recovery for Chromium (151.3%) is out of control. All Chromium data are estimated (J) due to high bias.

COPPER (soil) The matrix spike recovery for Copper (68.7%) is out of control. All Copper data are estimated (J) due to low bias.

LEAD (water) Sample MEKK72 for Lead was flagged (W) by the lab and is estimated (J) and sample MEKK77 for Lead was flagged (W) by the lab and is estimated (UJ) due to interference.

MAGNESIUM (soil) The RPDs (Relative Percent Differences) for Magnesium (79.6%) are out of control. All Magnesium data are estimated (J) due to poor precision.

MANGANESE (soil) The matrix spike recovery for Manganese (127.7%) is out of control. All Manganese data are estimated (J) due to high bias. The RPDs (Relative Percent Differences) for Manganese (67.0%) are out of control. All Manganese are affected, but remain qualified as stated above.

MANGANESE (water) The RPD (Relative Percent Difference) for Manganese (30.8%) is out of control. All Manganese data are estimated (J) due to poor precision.

TABLE 4-1 (Cont)

## WAUKESHA CASE #14928 --- NOTES ON INORGANIC QUALIFIERS (CONT.)

POTASSIUM (soil) The calibration correlation coefficient for Potassium (R=0.973) is less than 0.995. All Potassium data are estimated (J) due to poor correlation coefficient. Note that many of the samples are also qualified (B) by the lab, indicating that the value is greater than the IDL and less than the CRDL.

POTASSIUM (water) The calibration correlation coefficient for Potassium (R=0.973) is less than 0.995. All Potassium data are estimated (J) due to poor correlation coefficient. Note that many of the samples are also qualified (B) by the lab, indicating that the value is greater than the IDL and less than the CRDL.

SELENIUM (soil) The matrix spike recovery for Selenium (0.0%) is out of control. Samples MEKK62, MEKK63, MEKK65, and MEKK67 for Selenium were flagged (W) by the lab which indicates interference. All Selenium data are <IDL and are unusable (R).

SELENIUM (water) The matrix spike recovery for Selenium (0.0%) is out of control. Samples MEKK68-71, MEKK73, MEKK76, and MEKK77 for Selenium were flagged (W) by the lab which indicates interference. All Selenium data are <IDL and are unusable (R).

SILVER (soil) The matrix spike recovery for Silver (17.2%) is out of control. Samples MEKK61 and MEKK63 for Silver are estimated (J) due to low bias. Samples MEKK62, MEKK65, and MEKK67 for Silver are <IDL and are unusable (R).

SILVER (water) The matrix spike recovery for Silver (0.0%) is out of control. All Silver data are <IDL and are unusable (R).

THALLIUM (soil) Samples MEKK61, MEKK63, MEKK65, and MEKK67 for Thallium were flagged (W) by the lab and are estimated (UJ) due to interference.

THALLIUM (water) Samples MEKK68-72, MEKK74, and MEKK76 for Thallium were flagged (W) by the lab and are estimated (UJ) due to interference.

ZINC (soil) The ICP (Inductively Coupled Plasma) serial dilution for Zinc (34.1%) is out of control. All Zinc data are estimated (J) due to interference.

ZINC (water) The RPD (Relative Percent Difference) for Zinc (100.0%) is out of control. All Zinc data are estimated (J) due to poor precision.

TABLE 4-1 (Cont)

WAUKESHA DRILLING CASE #14716		VOLATILE ANALYSIS OF SOIL SAMPLES		
Sampling Date		8/16/90	8/16/90	8/17/90
	LOW	8:00	14:48	16:50
Sample Location ID	SOIL/SED	S01	S02	S03
	CRDL			
Traffic Report Number	(UG/KG)	ELM61	ELM62	ELM63
Percent Moisture	100 %	12 %	12 %	7 %
Dilution Factor		1	1	1
Compound \ Level		LOW	LOW	LOW
Number of TICs found:		0	0	0
Acetone	10	4 J		
Tetrachloroethene	5	9		
Moisture Adjustment for CRDL = 5		6	6	5
Moisture Adjustment for CRDL = 10		11	11	11

RECEIVED BY ENCOTEC-AA LAB ON 8/18/90

## DATA QUALIFIER DEFINITIONS (ORGANICS):

J = The associated value is an estimated value. This flag is used when the mass spectral data indicate the presence of a compound that meets the identification criteria, but the result is less than the sample quantitation limit. For example, if the sample quantitation limit is 10 ug/l, but a concentration of 3 ug/l is calculated, report it as 3J. The sample quantitation limit must be adjusted for both dilution and percent moisture.

R = The data are unusable. (Note: Compound may or may not be present.)

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and re-analyzed according to the specifications. All such compounds with a response greater than full scale should have the concentration flagged with an "E" for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported. The form for the diluted sample shall have the "DL" suffix appended to the sample number.

TABLE 4-1 (Cont)

## WAUKESHA DRILLING CASE #14716 SEMI-VOLATILE ANALYSIS OF SOIL SAMPLES

Sampling Date		8/16/90	8/16/90	8/17/90
	LOW	8:00	14:48	16:50
Sample Location ID	WATER	S01	S02	S03
	CRDL			
Traffic Report Number	(UG/L)	ELM61	ELM62	ELM63
Percent Moisture	100 %	12 %	12 %	7 %
Dilution Factor		1	1	1
pH		8.0	8.2	8.7
Compound \ Level		LOW	LOW	LOW
Number of TICs found:		5	13	4
Pyrene	330	100 J		
Benzo(a)Anthracene	330	83 J		
bis(2-Ethylhexyl)Phthalate	330			250 J
Chrysene	330	210 J		
Benzo(b)Fluoranthene	330	83 J		
Moisture Adjustment for CRDL = 330		750	750	710
Moisture Adjustment for CRDL = 1600		3600	3600	3400

RECEIVED BY ENCOTEC-AA LAB ON 8/18/90

THE SOIL SAMPLES WERE ANALYZED FOR PESTICIDES/PCBs, THOUGH NONE WERE DETECTED.

TABLE 4-1 (Cont)

WAUKESHA DRILLING, CASE #14716 --- NOTES ON ORGANIC QUALIFIERS

Soil Volatiles

The volatile method blank was found to contain only the common contaminants Methylene Chloride, Butanone, and Toluene. The samples also contained each of these compounds. The concentrations were found to be within limits and were qualified as non-detects (U).

Soil Semi-Volatiles

Both semi-volatile blanks contained the common phthalate ester Di-n-Butylphthalate, but this compound was not found in any of the samples. SBLK2 alone contained a single TIC (Tentatively Identified Compound), but this blank was used for the matrix spike samples.

Soil Pesticides

Neither of the two pesticide blanks contained any TCL (Targeted Compound List) compounds.

TABLE 4-1 (Cont)

WAUKESHA DRILLING CASE #14716

## METALS ANALYSIS OF SOIL SAMPLES

Sampling Date			8/16/90	8/16/90	8/17/90
	LOW	LOW	8:00	14:48	16:50
Sample Location ID	SOIL/SED	SOIL/SED	S01	S02	S03
	CRDL	IDL			
Traffic Report Number	(MG/KG)	(MG/KG)	MELK61	MELK62	MELK63
Percent Solids	0 %	0 %	70.0 %	91.7 %	93.9 %
Inorganic Elements \ Level			LOW	LOW	LOW
Aluminum	40	7.4	7830 J	837 J	656 J
Antimony	12	7.8	8.2 UJ	6.6 UJ	7.9 UJ
Arsenic	2	0.2	4.4 J	1.9 BJ	2.7 J
Barium	40	0.6	52.1	12.8 B	5.3 B
Beryllium	1	0.2	0.84 BJ	0.51 BJ	0.61 BJ
Cadmium	1	0.6	1.5	0.51 B	0.61 B
Calcium	1000	2.6	40300 J	97300 J	88700 J
Chromium	2	1.2	15.5	3.2 J	4.1 J
Cobalt	10	1	7.1 B	2.6 BJ	
Copper	5	0.6	28.4	4.1 BJ	3.9 BJ
Iron	20	1	14100 J	5270 J	3710 J
Lead	1	0.2	0.31 UJ	0.21 UJ	0.16 UJ
Magnesium	1000	5.2	244100	41700	44600
Manganese	3	0.4	497 J	286 J	151 J
Mercury	0.2	0.1	R	R	R
Nickel	8	2.2	16.4	4.1 B	4.3 B
Potassium	1000	62.0	685 B	169 B	211 BJ
Selenium	1	0.6	0.84 UJ	0.6 UJ	0.5 UJ
Sodium	1000	10.8	620 B	263 B	231 B
Thallium	2	0.2	0.28 UJ		
Vanadium	10	1.4	23.7	4.3 BJ	4.3 BJ
Zinc	4	0.6	79.0	19.6	13.4
Color Before Analyses			Brown	Brown	Brown
Color After Analyses			Yellow	Yellow	Yellow
Texture			Coarse	Coarse	Coarse

REMARKS: \*PLD=Partial lab duplicate analyzed.

\*PLD

SAMPLES RECEIVED 8/18/90 BY CEIMIC

NOTE: The lab may not have complied with the Contract Required Detection Limits for Antimony (CRDL = 2.4 MG/KG) and/or Mercury (CRDL = .008 MG/KG).



## DATA QUALIFIER DEFINITIONS (INORGANICS/METALS):

- U = The material was analyzed for, but was not detected above the level of associated value. The associated value is either the sample quantitation limit or the sample detection limit.
- UJ = The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
- J = The associated value is an estimated quantity.
- B = Concentration is greater than the IDL, but less than the CRDL. (IDL = Instrument Detection Limit; CRDL = Contract Required Detection Limit)
- R = The data are unusable. (Note: Analyte may or may not be present.)

TABLE 4-1 (Cont)

Sampling Date			8/16/90	8/16/90	8/17/90			
	LOW	LOW	8:00	14:48	16:50			
Sample Location ID	SOIL	SOIL	S01	S02	S03			
	/SED	/SED						
Traffic Report No	(MG/KG)	(MG/KG)	MELK61	MELK62	MELK63			
Percent Solids	0 %	0 %	70.0 %	91.7 %	93.9 %			
	CRDL	IDL	CRDL	IDL	CRDL	IDL	CRDL	IDL
Aluminum	40	7.4	57.14	10.57	43.62	8.07	42.60	7.88
Antimony	12	7.8	17.14	11.14	13.09	8.51	12.78	8.31
Arsenic	2	0.2	2.86	0.29	2.18	0.22	2.13	0.21
Barium	40	0.6	57.14	0.86	43.62	0.65	42.60	0.64
Beryllium	1	0.2	1.43	0.29	1.09	0.22	1.06	0.21
Cadmium	1	0.6	1.43	0.86	1.09	0.65	1.06	0.64
Calcium	1000	2.6	1428.57	3.71	1090.51	2.84	1064.96	2.77
Chromium	2	1.2	2.86	1.71	2.18	1.31	2.13	1.28
Cobalt	10	1	14.29	1.43	10.91	1.09	10.65	1.06
Copper	5	0.6	7.14	0.86	5.45	0.65	5.32	0.64
Iron	20	1	28.57	1.43	21.81	1.09	21.30	1.06
Lead	1	0.2	1.43	0.29	1.09	0.22	1.06	0.21
Magnesium	1000	5.2	1428.57	7.43	1090.51	5.67	1064.96	5.54
Manganese	3	0.4	4.29	0.57	3.27	0.44	3.19	0.43
Mercury	0.2	0.1	0.29	0.14	0.22	0.11	0.21	0.11
Nickel	8	2.2	11.43	3.14	8.72	2.40	8.52	2.34
Potassium	1000	62.0	1428.57	88.57	1090.51	67.61	1064.96	66.03
Selenium	1	0.6	1.43	0.86	1.09	0.65	1.06	0.64
Silver	2	1.2	2.86	1.71	2.18	1.31	2.13	1.28
Sodium	1000	10.8	1428.57	15.43	1090.51	11.78	1064.96	11.50
Thallium	2	0.2	2.86	0.29	2.18	0.22	2.13	0.21
Vanadium	10	1.4	14.29	2.00	10.91	1.53	10.65	1.49
Zinc	4	0.6	5.71	0.86	4.36	0.65	4.26	0.64

NOTE: The lab may not have complied with the Contract Required Detection Limits for Antimony (CRDL = 2.4 MG/KG) and/or Mercury (CRDL = 0.008 MG/KG).

TABLE 4-1 (Cont)

## WAUKESHA DRILLING CASE #14716 --- NOTES ON INORGANIC QUALIFIERS:

ALUMINUM (soil)	The duplicate audit for Aluminum (50.0% RPD) (Relative Percent Difference) is out of control. The serial dilution for Aluminum (12.8%) is also out of control. All Aluminum results are estimated (J) due to poor precision and interference.
ANTIMONY (soil)	The matrix spike recovery for Antimony (59.0%) is out of control. All Antimony results are estimated (UJ) due to possible elevated detection limit.
ARSENIC (soil)	The duplicate audit for Arsenic (CRDL) was not flagged by the lab since its duplicate difference is less than 2X CRDL. Arsenic data are not qualified on this basis. The matrix spike recovery for Arsenic (44.2%) is out of control. The lab flagged sample MELK62 with a (W) flag. Sample MELK62 is estimated (J) due to low bias and interference. All remaining Arsenic results are estimated (J) due to low bias. Note that sample MELK62 is also qualified (B) by the lab as the value is greater than the IDL and less than the CRDL.
BERYLLIUM (soil)	The preparation blank was found to contain Beryllium (0.6 mg/kg). A CCB (Continuing Calibration Blank) was found to contain Beryllium (3.0 ug/l). Beryllium in all samples are affected and are estimated (J) due to contamination. Note that the samples are also qualified (B) by the lab as the value is greater than the IDL and less than the CRDL.
CALCIUM (soil)	The duplicate audit for Calcium (45.4% RPD) is out of control. All Calcium results are estimated (J) due to poor precision.
CHROMIUM (soil)	The preparation blank was found to contain Chromium (1.2 mg/kg). Chromium in MELK62 and MELK63 are affected and are estimated (J) due to contamination.
COBALT (soil)	A CCB (Continuing Calibration Blank) was found to contain Cobalt (6.0 ug/l). Cobalt in MELK62 is affected and is estimated (J) due to contamination. Note that the sample is also qualified (B) by the lab as the value is greater than the IDL and less than the CRDL.
COPPER (soil)	The preparation blank was found to contain Copper (1.4 mg/kg). A CCB (Continuing Calibration Blank) was found to contain Copper (5.0 ug/l). Copper in MELK62 and MELK63 are affected and are estimated (J) due to contamination. Note that the samples are also qualified (B) by the lab as the value is greater than the IDL and less than the CRDL.

TABLE 4-1 (Cont)

WAUKESHA DRILLING CASE #14716 --- NOTES ON INORGANIC QUALIFIERS  
(CONT.)

IRON (soil)	The duplicate audit for Iron (25.3% RPD) was flagged by the lab based on the criteria for water. The technical criteria for soils (35%) was not exceeded, therefore, Iron results are not qualified on this basis. However, the serial dilution for Iron (12.5%) is out of control. All Iron results are estimated (J) due to interference.
LEAD (soil)	The matrix spike recovery for Lead (30.0%) is out of control. All Lead results are estimated (UJ) due to a possible elevated detection limit.
MANGANESE (soil)	The duplicate audit for Manganese (29.5% RPD) was flagged by the lab based on the criteria for water. The technical criteria for soils (35%) was not exceeded, therefore, Manganese results are not qualified on this basis. However, the serial dilution for Manganese (13.9%) is out of control. All Manganese results are estimated (J) due to interference.
MERCURY (soil)	The matrix spike recovery for Mercury (29.6%) is out of control. All Mercury results are <IDL and therefore unusable (R).
POTASSIUM (soil)	A CCB (Continuing Calibration Blank) was found to contain Potassium (450 ug/l). Potassium in MELK63 is affected and is estimated (J) due to contamination. Note that the sample is also qualified (B) by the lab as the value is greater than the IDL and less than the CRDL.
SELENIUM (soil)	The Selenium results all samples were flagged by the lab with (W) flags and are estimated (UJ) due to interference.
THALLIUM (soil)	The Thallium result on samples MELK61 was flagged by the lab with a (W) flag and is estimated (UJ) due to interference.
VANADIUM (soil)	A CCB (Continuing Calibration Blank) was found to contain Vanadium (7.0 ug/l). Vanadium in MELK62 and MELK63 are affected and are estimated (J) due to contamination. Note that the samples are also qualified (B) by the lab as the value is greater than the IDL and less than the CRDL.

## **5. DISCUSSION OF MIGRATION PATHWAYS**

### **5.1 INTRODUCTION**

This section discusses data and information that applies to potential migration pathways and receptors of TCL compounds and/or TAL analytes that may be attributable to the Waukesha Sanitary Landfill facility.

The migration pathways of concern discussed include: groundwater, surface water, air, fire and explosion, and soil exposure.

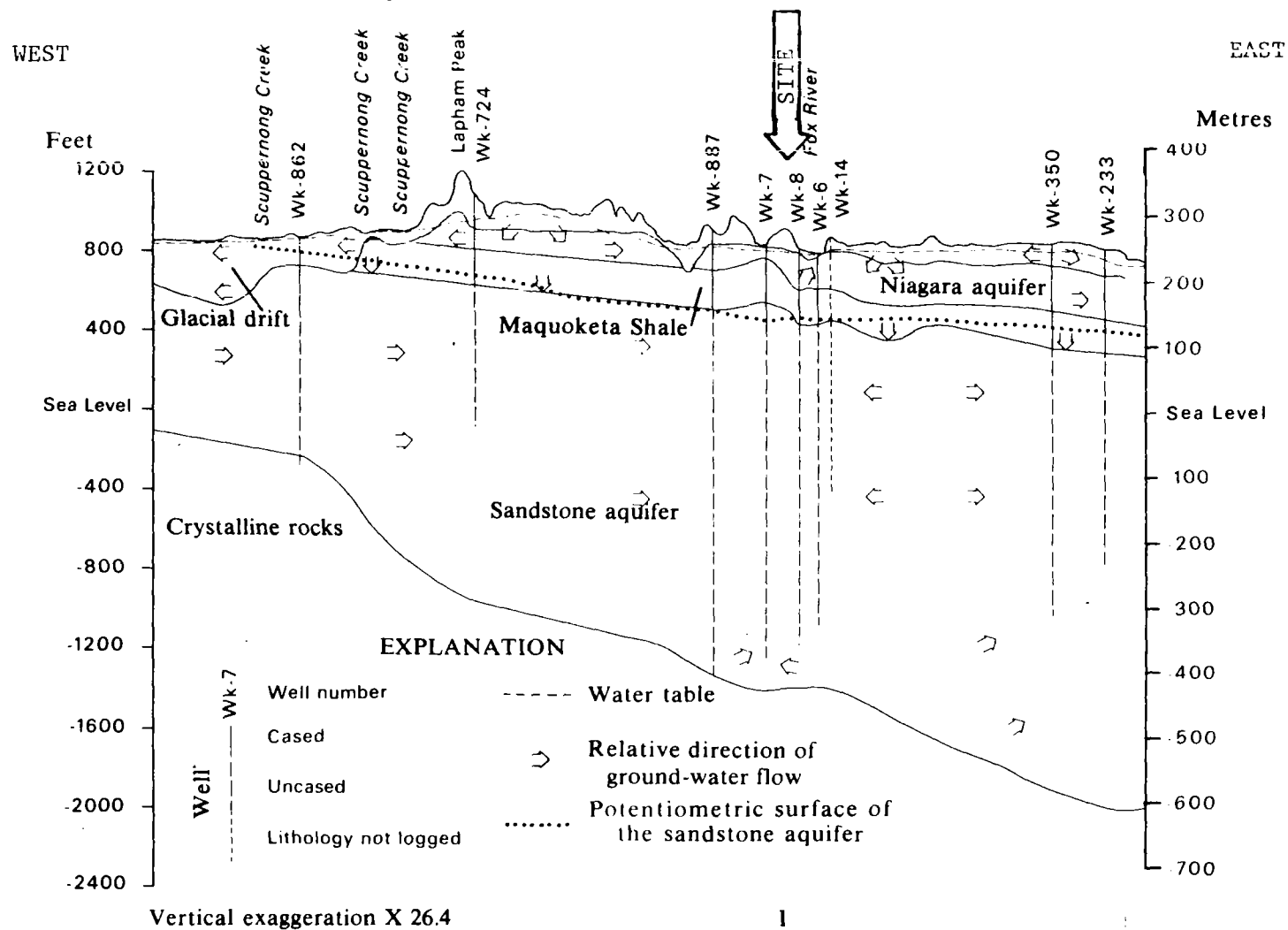
### **5.2 GROUNDWATER**

Reports discussing the geology, hydrogeology, and groundwater chemistry have not been prepared for the Waukesha Sanitary Landfill facility. A groundwater monitoring system did not exist previously at this site. WDNR conducted a drilling Site inspection at the facility beginning the week of August 13, 1990. Sampling of the monitoring wells was conducted on September 18, 1990. One round of groundwater sampling data was collected and is available for evaluation (see table 4-1).

The Waukesha Sanitary Landfill is located in eastern Waukesha County in an area overlain by Pleistocene Age till and outwash deposits belonging to the New Berlin Formation. The outwash deposits in the southern part of the county are mostly stratified silt, sand, and gravel (Gonthier, 1975).

The New Berlin Formation consists of two principal members, a lower sand and gravel unit generally reaching a thickness of 12 to 15 meters, and an upper member that is mostly till, generally thinner and reaching a thickness up to 10 meters. Neither unit has been formally defined. The lower member is interpreted as outwash sediment (typically sand and gravel) deposited in front of, and around, the margins of the advancing Delavan sublobe of the Lake Michigan Lobe. The upper unit of the formation is interpreted as basal till (typically gravelly, sandy loam till) also deposited by the Delavan Sublobe (Mickelson, Clayton, et al, 1984). At several locations the till has been observed to be split into two till units separated by deposits of outwash sand and gravel similar to the deposits found in the lower member of the formation.

At other locations most of the till unit is found similar to the underlying sand and gravel member. The formation also includes thick, coarse, ice contact deposits (Mickelson, Clayton, et. al, 1984).



Source: (Gonthier, 1975)

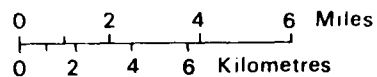


Figure 5-1 Geohydrologic section through Waukesha County, Wisconsin,  
December 1972 - January 1973.

The lower unit of the New Berlin Formation together with the upper portion of the Silurian dolomite limestone form the shallow aquifer in the area. Both public and private water supplies surrounding the Waukesha Sanitary Landfill site utilize this shallow aquifer (aquifer of concern) (WDNR water-supply well information). Local well construction reports are provided in Appendix B.

The New Berlin Formation overlies Silurian Age dolomite bedrock. Local municipal wells serving the City of Waukesha penetrate the underlying Maquoketa shale and are completed in the sandstone aquifer. A geohydrogeologic cross-section through Waukesha County (east-west) is provided in Figure 5-1.

Well logs compiled during the drilling phase of the SSI do not provide a complete description of the site geology because the majority of the soil borings were advanced through artificial fill materials. The soil boring log of MW-1 indicates fine to coarse sand (some of which is discolored) with crushed glass, and slag from a depth of two feet to ten feet. The fill material overlies a two foot layer of peat which in turn overlies layers of fine gravel and silt. The soil boring log of MW-2 describes layers of sand, silt, clay, and peat interpreted as fill material from a depth of three feet to 25 feet below grade. Predominantly well sorted layers of fine sand and gravel are found below the fill. The fine sand unit potentially extends beyond the end of boring (45.0 ft.) to the top of bedrock. The soil boring log of MW-3 describes naturally deposited materials for the entire depth of the boring. A thick, unsorted, brown sand and gravel unit extends from about one foot to approximately 26 feet below grade. The sand and gravel unit overlies smaller units of predominantly well sorted fine sand and a fine gravel seam (about two feet) extending to the top of the dolomite bedrock. Soil boring MW-4 indicates fill materials over the length of the boring. At the depth of about 11 feet to 13 feet, black and grey wood waste was encountered. Below the wood fill, gray crushed sandstone fill material was interpreted. The end of boring was completed in an underlying peat layer. The boring was terminated at this depth in order to provide sufficient water to instrument a monitoring well without penetrating a potential confining layer. Significant contamination was noted during the completion of soil boring MW-4. Soil staining, as well as a petroleum type sheen, and organic chemical odors, were observed. Well logs of the site are provided in Appendix B.

The depth to groundwater was measured during the second phase of the SSI. The average depth to groundwater on the east and south perimeter of the site averaged about nine feet. The west perimeter of the site (at wells MW-4 and Scopp) averaged 17.5 feet. The greatest depth to the water table was indicated by site well MW-2 and

piezometer MW-3 on the northwest corner of the landfill. The measured depth to groundwater for MW-2 and MW-3 was 36.7 feet and 33.5 feet, respectively. Based upon the measured groundwater elevations, the shallow aquifer beneath the site is unconfined and flows in a northwest direction toward the Fox River. The ground water gradient across the site averages between 0.0156 feet/feet (ft/ft) and 0.0188ft/ft determined between monitoring points MW-1 to the Scopp well and MW-1 to MW-2, respectively.

TCL compounds and TAL analytes were detected in groundwater samples collected from monitoring wells and private water supply wells located down-gradient from the Waukesha Sanitary Landfill facility. Station S08 (Scopp monitoring well) determined volatile organic compounds benzene and total xylenes at over two and one-half times, and three and one-half times, the CRDL, respectively. The monitoring well is instrumented at the location of a previously remediated underground gasoline storage tank leak. The detection of these parameters, therefore, cannot be directly attributed to the site. Station S11 (PDQ sump) determined the compound 2-butanone at 450 times the CRDL. The sump is instrumented at the location of a new service station. An empty oil can and a petroleum sheen, as well as other debris, was observed in the sump. The detection of 2-butanone, cannot be directly attributed to the site. Station S13 (private well Phillips 66 station) determined the highest benzene concentration at 220 times the CRDL. The water supply well water had the distinctive odor of gasoline. It can be assumed that the compound detected is related to an underground storage tank release and not attributable to the facility.

Station S09 (site monitoring well MW-3) determined numerous TCL compounds. Vinyl chloride was detected at 44 times the CRDL, and (total)-1, 2-dichloroethene was detected at 46 times the CRDL. Chloromethane and 1, 1-dichloroethane were determined at 29 times and 28 times, (respectively) the CRDL. Benzene and chlorobenzene were determined at concentrations seven times the CRDL. 1,1,1-trichloroethane and ethyl benzene were detected at approximately four times the CRDL values. Station S14 (monitoring well MW-4) determined several TCL compounds. Total xylenes were detected at 1360 times the CRDL concentrations. Toluene and ethyl-benzene were determined to have concentrations 320 times and 240 times the CRDL, respectively. Tetrachloroethane and 2-butanone were found to have concentrations 24 times and 67 times the CRDL. The water sample of Station S14 was also determined to have significant concentrations of semi-volatile compounds and PCB congeners. Naphthalene and 2-methylnaphthalene were determined at levels 540 times and 32 times the CRDL concentrations. It is uncommon to find quantifiable concentrations of PCB congeners in groundwater. Aroclor-1260 and Aroclor-1254 were detected at concentrations 64 times and 11 times the



CRDL values. Both down-gradient monitoring wells MW-3 and MW-4, were found to have significant amounts of contamination.

It should be noted that well MW-1 (Station S02), the potential background well, had no detectable concentrations of any TCL compounds sampled.

TAL analytes were also determined in the SSI groundwater samples. Heavy metals were detected at several monitoring points. The sample from Station S08 reported a barium concentration almost three times the CRDL and over four times the potential background groundwater sample concentration. Station S11 was determined to have a cadmium concentration over two and one-half times the CRDL. Cadmium was also detected in the sample of Station S12 at a concentration over three times the CRDL. Cadmium was not detected above the CRDL concentration in the potential background groundwater sample.

Downgradient monitoring well MW-4 (Station S14) had numerous heavy metal exceedances. Barium was reported at nine times the CRDL and 13 times the potential background well concentration. Cadmium had a concentration over four times the CRDL. Chromium was detected in the sample at 77 times the CRDL. The sample from Station S14 determined that lead was elevated over 71 times the CRDL concentration and arsenic was exceeded in the sample by five times the CRDL.

Both private well samples detected significant concentrations of lead. Samples from Station S12 and S13 determined concentrations of lead at 11 times and over 14 times, (respectively) the CRDL value. Lead was not detected in the potential background sample over the CRDL concentration.

SSI sample data also indicates that additional TAL analytes were determined at significant concentrations above background. The detected concentrations of aluminum, copper, potassium, sodium, and zinc in downgradient well samples provide further evidence that the site is causing a release to the groundwater pathway.

All public and private water supplies in Waukesha County depend exclusively on groundwater. The City of Waukesha, where the site is located, is served by groundwater derived from municipal wells completed in the lower sandstone aquifer at depths from 1800 to 2300 feet. Two municipal wells are found within one mile of the site. The closest municipal well is located approximately 1800 feet southeast of the facility. The municipal wells are cased through the Maquoketa Shale. The Maquoketa Shale has been determined to be both extensive and continuous in the vicinity of the site. It is therefore

interpreted to be acting as an aquatard (WDNR Water Supply Well Information). The sandstone aquifer is therefore excluded from the aquifer of concern and related target populations.

Both public and private water supplies within four miles of the facility also depend on the shallow aquifer. The wells are completed in the sand and gravel/dolomite aquifer (aquifer of concern). Information derived by the SSI identified approximately 18 shallow wells serving residences southwest of the site in the Town of Waukesha. The closest well (a non-community supply) is located about 300 feet southwest. The closest community well identified in the aquifer of concern is a municipal supply located about three miles northeast of the facility in the Town of Brookfield (See Appendix B for area well construction reports).

Two private wells (Stations S12 and S13) were sampled during the Waukesha Sanitary Landfill SSI and found to have significant concentrations of lead and cadmium. Public health drinking water standard maximum contaminant levels (MCLs) were exceeded for both parameters. Station S12 determined a cadmium concentration of 16.4 ppb at three times the MCL. The lead concentration of Station S13 reported an even higher lead concentration at 43.6 ppb. This value is almost nine times the new established maximum contaminant level for lead (5 ppb). The exceedances of these toxic metals are documented within the aquifer of concern and are interpreted to be attributable to the site. Therefore, primary target populations exist.

Groundwater flow as a result of the drilling SSI has been interpreted to be to the northwest. The location of the monitoring wells was also skewed to the northwest in order to monitor the location of the deepest and potentially most toxic and hazardous waste disposal. Groundwater flow, based upon regional data, has been interpreted to be more radially distributed toward the West, Northwest, and Southwest. The shallow depth to groundwater determined along the southeast and southwest perimeter of the site may suggest groundwater mounding within the landfill. Therefore, groundwater could be expected to flow in a more radial pattern from the site which would be more consistent with the interpreted regional flow direction. The number of potential primary targets would therefore increase, especially southwest of the site.

Public non-community and private wells located southwest of the facility can be designated as potential primary targets. Primary targets include approximately 59 persons.

The secondary target population living within a four mile radius of the site includes approximately 14275 persons. The target population was

calculated by counting the number of buildings/residences within four miles of the site (excluding the City of Waukesha municipal water distribution area) and multiplying this total by 3.11, the number of persons per household in Waukesha County (U.S. Department of Commerce, General Population Characteristics - Wisconsin, 1980 Census). The population growth in Waukesha County has increased rapidly since the up-dating (photo revision) of the U.S.G.S. topographic maps (1971-1976). Therefore, it is alleged that the secondary groundwater target population count is substantially under estimated relative to current conditions.

### 5.3 SURFACE WATER

The potential exists for TCL compounds and TAL analytes to migrate from the Waukesha Sanitary Landfill facility both over land and underground to nearby surface water bodies. The following information is known:

- . The nearest surface water body is the Fox River located about three-fourths of a mile from the site.
- . The topography of the site does not collect or channelize runoff to natural drainage ways leading to the Fox River. A municipal storm sewer system surrounds the site.
- . Groundwater flow beneath the site is to the west toward the Fox River.
- . TCL compounds and TAL analytes were detected in on-site soil samples and down gradient monitoring wells.

TCL compounds and TAL analytes were found in surface samples at sufficient concentrations to attribute a release from the facility. Analysis of surface soil samples found the following: Station S01 (collected within an area of sparse/absent vegetation) determined PCB congeners at three and five times the CRDL. Station S01 also determined concentrations of chromium at ninety times the CRDL and ten times the potential background soil concentration. Station S03 (collected within an area of sparse/absent vegetation) also determined a PCB congener above the CRDL. Numerous semi-volatile compounds were also determined at concentrations from one to three times the CRDL and between four and ten times the potential background soil concentrations. The TCL compounds detected included: phenanthrene, flouranthene, pyrene, benzo (a) anthracene, chrysene, benzo (b) flouranthene, benzo (k) flouranthene, benzo (a) pyrene, and benzo (g,h,i,) perylene. Station S03 also determined, chromium at sixty

times the CRDL and almost seven times the potential background soil concentration. Lead was also detected over one hundred times the CRDL and over twice the potential background soil concentration.

It should be noted that 4,4-DDE and 4,4-DDT were detected in the potential background soil sample at several times above the CRDL concentrations. Neither compound, however, was determined in any of the on-site soil samples. PCB congeners were not detected in the potential background soil sample. (See Table 4-1 for SSI sample data)

The laboratory results of the soil samples from Station S01 and S03 demonstrate soil contamination attributable to the facility. Runoff from the site, which commonly includes soil particles, may be collected by the street gutter/storm sewer system and discharged to the nearest surface water body (Fox River).

A release to groundwater has been documented and attributed to the facility. (See Section 5.2, Groundwater Migration Pathway.) Groundwater acts as a migration component of the surface water migration pathway. The shallow aquifer is found from nine to 36 feet below the site, within outwash deposits of the New Berlin Formation.

Based upon all available information the potential for a release to the surface water pathway is low, but suspected. There are no primary or secondary drinking water targets because no surface water intakes exist within 15 miles downstream of the site.

Un-named wetlands exist approximately three-quarters of a mile south, and southwest, of the site. Additional wetlands within one mile of the site are found along Pebble Brook (south). The nearest shoreland wetlands along the Fox River are located about one and one-half mile southwest of the site.

A human food chain threat may exist as there are suspected secondary fisheries in the Fox River. At low flow, the Fox River can have a stream velocity (Q7, 10) of 4.4 cubic feet per second (Holmstrom, B.K., and Erickson, R.M., 1989). The Fox River supports a warm water fishery with a variety of fish species including: Common carp, golden shiner, common shiner, hornyhead chub, creek chub, spot tail shiner, blunt nose minnow, flathead minnow, white sucker, green sunfish, yellow pumpkinseed, bluegill, yellow bullhead, yellow perch, rock bass, black crappie, and northern pike (WDNR Fish Sampling Data Base - Fox River Basin).

#### 5.4

#### AIR

A release of TCL compounds into the air was not indicated during the Waukesha Sanitary landfill SSI. The site entry instrument (HNU HW-101) did not detect organic vapors significantly above background at on-site sampling locations or at areas within the breathing zone along the downwind side of the site. In accordance with the U.S. EPA approved work plan, further air monitoring was not conducted.

The site is closed, capped, and vegetated, therefore, the potential for windblown particulates to carry TCL compounds or TAL analytes from this area of the site is low.

There is a limited potential that waste or contaminated soil may release small quantities of target compounds and target analytes to the atmosphere if the materials are re-exposed. Heavy truck or other vehicle traffic from landscaping activities related to land development may release and disperse TCL compounds or TAL analytes into the air migration pathway. The southern portion of the site is currently being considered for development into baseball diamonds and other recreation/parkland use.

The total target population that may be potentially affected within one half mile of the facility by a release to the air is approximately 5024 persons.

Primary targets include 1754 residents within one-quarter mile of the site. There are no workers currently on site. A secondary target population located between one quarter and one-half mile from the site includes 4270 residents. The secondary target population was derived by counting the number of buildings/residences (including area multi-family apartment buildings) multiplied by 3.11 persons (U.S. Department of Commerce, General Population Characteristics - Wisconsin, 1980 Census).

Secondary sensitive environments may exist near the site. *Prenanthes aspera*, a State-endangered plant, is known to occur in habitat found near and within one mile of the landfill (Nicotera, 1991).

## 5.5

### FIRE AND EXPLOSION

The potential for fire and explosion at this site is medium. Highly flammable materials were routinely disposed at this site and may continue to remain within buried drums. The previously disposed waste also included many waste types that typically contain wood materials and other combustibles. These materials are entirely covered and capped in the closed areas. Fires and explosions which may occur would be related to the ignition of any waste that is re-exposed. Methane gas is generated by the facility but is not currently monitored

or collected. The potential exists for methane gas released by the site to ignite, causing fires on or near the site or explosions within structures, on or adjacent to the site.

The total target population that may be potentially affected within one mile of the facility by fire and/or explosion is approximately 14,418 persons. This figure was derived at by adding the total number of buildings/residences multiplied by 3.11 persons (U.S. Department of Commerce, General Population Characteristics -Wisconsin, 1980 Census) and by adding an apportioned percentage of the City of Waukesha population.

## 5.6 SOIL EXPOSURE

According to State file information, there is no documented incident of soil exposure with TCL compounds or TAL analytes at the Waukesha Sanitary landfill facility. Access to the facility is un-restricted. Portions of the site are privately owned and developed for residential use. The southern one-half of the facility is currently being proposed for park/recreational use.

The potential for soil exposure to people living in the proximity of the site is reduced because the previous disposed waste is buried and covered.

TCL compounds and TAL analytes were found in surface soil samples at sufficient concentrations to attribute a release to the soil exposure pathway. Analysis of surface soil samples found the following: Station S01 (collected within an area of sparse/absent vegetation) determined PCB congeners at three and five times the CRDL. Station S01 also determined concentrations of chromium at ninety times the CRDL and ten times the potential background soil concentration. Station S03 (collected within an area of sparse/absent vegetation) also determined a PCB congener above the CRDL. Numerous semi-volatile compounds were also determined at concentrations from one to three times the CRDL and between four and ten times the potential background soil concentrations. The TCL compounds detected included: phenanthrene, flouranthene, pyrene, benzo (a) anthracene, chrysene, benzo (b) flouranthene, benzo (k) flouranthene, benzo (a) pyrene, and benzo (g,h,i,) perylene. Station S03 also determined, chromium at sixty times the CRDL and almost seven times the potential background soil concentration. Lead was also detected over one hundred times the CRDL and over twice the potential background soil concentration.

It should be noted that 4,4-DDE and 4,4-DDT were detected in the potential background soil sample at several times above the CRDL concentrations. Neither compound, however, was determined in any of

the on-site soil samples. PCB congeners also were not detected in the potential background soil sample. (See Table 4-1 for SSI sample data)

Primary targets as well as a resident population exist at the Waukesha Sanitary Landfill facility. Multi-family apartment buildings are known to have been constructed on, or adjacent to, waste disposal areas. The soil sample at Station S03 (containing, PCBs) was collected approximately 200 feet west of a property containing a multi-family apartment building. The resident population is estimated to be 572 persons. This figure was derived by approximating the number of apartment units for all multi-family dwellings on, or adjacent to, the known disposal areas multiplied by 3.11 persons (U.S. Department of Commerce, General Population Characteristics - Wisconsin, 1980 Census). There are currently no workers on site.

## 6. BIBLIOGRAPHY AND REFERENCE LIST

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4. Martin, Steven, L., and Krause, Kristopher, D., RMT INC., letter to Greg Miller of P.D.Q. Food Stores, Inc., August 17, 1990.
5. Mickelson, David M., Clayton, Lee, Baker, Robert W., Mode, William N., and Schneider, Allen F., July 1984, Pleistocene Stratigraphic Units of Wisconsin. paper 84-1
6. Nicotera, Ronald F., June 20, 1991, WDNR Memorandum to John Krahling: Endangered Resources Information Review, Waukesha Sanitary Landfill et. al.
7. WDNR, Solid Waste Case File for Waukesha Sanitary Landfill, Waukesha, Wisconsin.
8. WDNR, December 27, 1984, Potential Waste Site Preliminary Assessment Waukesha Sanitary Landfill, Waukesha, Wisconsin, prepared by Elizabeth Duchelle, Milwaukee, Wisconsin.
9. WDNR, Screening Site Inspection for Waukesha Sanitary Landfill Waukesha, Wisconsin conducted August 15-18 and September 17-18, 1990.
10. WDNR, 4-Mile radius map for Waukesha Sanitary Landfill (Appendix D), Genesee, Hartland, Muskego, and Waukesha - USGS, Quadrangle Maps, 7.5 Minute Series: Scale 1:24000).
11. WDNR Water Supply Well Information, including: Public Water Supply Data Book, prepared by Eric Syftestad, WDNR, Madison, Wisconsin, 1985.
12. WDNR, April 7, 1988, Preliminary Assessment Guidance Document



13. WDNR, July 23, 1990, Superfund Site Sampling Plan-Waukesha Sanitary Landfill
14. WDNR, August, 1991, Screening Site Inspection Report, Waukesha Sanitary Landfill
15. U.S. Department of Commerce, Bureau of Census, 1980, Census of Population, General Population Characteristics - Wisconsin.
16. WDNR Fish Sampling Data Base, Fox River Basin, Compilation of all years data.

APPENDIX A

Site Inspection Forms  
U.S. EPA FORM 2070-13  
For  
WAUKESHA SANITARY LANDFILL



# Site Inspection Report



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) WAUKESHA SANITARY LANDFILL	02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER 995 S. WEST AVENUE				
03 CITY WAUKESHA	04 STATE WI	05 ZIP CODE 53188	06 COUNTY WAUKESHA	07 COUNTY CODE 133	08 COUNTY DIST. 015
09 COORDINATES LATITUDE 42 52 30. -		LONGITUDE 87 14 06. -			
10 TYPE OF OWNERSHIP (Check one) <input type="checkbox"/> A PRIVATE <input type="checkbox"/> B FEDERAL <input type="checkbox"/> C STATE <input type="checkbox"/> D COUNTY <input checked="" type="checkbox"/> E MUNICIPAL <input type="checkbox"/> F OTHER <input type="checkbox"/> G UNKNOWN					

III. INSPECTION INFORMATION

01 DATE OF INSPECTION 9/18-19/1990 MONTH DAY YEAR	02 SITE STATUS <input type="checkbox"/> ACTIVE <input checked="" type="checkbox"/> INACTIVE	03 YEARS OF OPERATION 1950s   1976 BEGINNING YEAR ENDING YEAR		UNKNOWN
---	---	---	--	---------

04 AGENCY PERFORMING INSPECTION (Check all that apply)

<input type="checkbox"/> A EPA	<input type="checkbox"/> B EPA CONTRACTOR	<input type="checkbox"/> C MUNICIPAL	<input type="checkbox"/> D MUNICIPAL CONTRACTOR
<input checked="" type="checkbox"/> E STATE	<input type="checkbox"/> F STATE CONTRACTOR	<input type="checkbox"/> G OTHER	

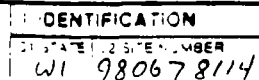
05 CHIEF INSPECTOR JOHN KRAHLING	06 TITLE HYDROGEOLOGIST	07 ORGANIZATION WDNR	08 TELEPHONE NO. (414) 263-8658
09 OTHER INSPECTORS RUTH JOHNSON	10 TITLE HYDROGEOLOGIST	11 ORGANIZATION WDNR	12 TELEPHONE NO. (414) 263-8663
MARGARET GRAEFE	HYDROGEOLOGIST	WDNR	(414) 263-8646
CHIP KROHN	HYDROGEOLOGIST	WDNR	(414) 263-8666
JEFF FISCHER	HYDROGEOLOGIST	WDNR	(414) 263-8655
JOHN FEENEY	HYDROGEOLOGIST	WDNR	(414) 263-8654

13 SITE REPRESENTATIVES INTERVIEWED RODNEY VANDEN NOVEN	14 TITLE Director of Public Works	15 ADDRESS 201 DELAFIELD ST.	16 TELEPHONE NO. (414) 524-3600
RICHARD ZIMMERMAN	CITY ENGINEER	201 DELAFIELD ST.	(414) 524-3600
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one) <input checked="" type="checkbox"/> PERMISSION <input type="checkbox"/> WARRANT	18 TIME OF INSPECTION 9:00 am	19 WEATHER CONDITIONS Cool, overcast
--	----------------------------------	---

IV. INFORMATION AVAILABLE FROM

01 CONTACT JOHN KRAHLING	02 OF (Agency/ Organization) WIS. DEPT. OF NATURAL RESOURCES		03 TELEPHONE NO. (414) 263-8658
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM JOHN KRAHLING	05 AGENCY STATE	06 ORGANIZATION WDNR	07 TELEPHONE NO. 414-263-8658
			08 DATE 9 10 91 MONTH DAY YEAR



<input checked="" type="checkbox"/> A TOXIC	<input type="checkbox"/> E SOLUBLE	<input checked="" type="checkbox"/> H HIGHLY SOLUBLE
<input type="checkbox"/> B CORROSIVE	<input type="checkbox"/> F INFECTIOUS	<input type="checkbox"/> I EXPLOSIVE
<input type="checkbox"/> C RADIOACTIVE	<input checked="" type="checkbox"/> G FLAMMABLE	<input type="checkbox"/> K REACTIVE
<input checked="" type="checkbox"/> D PERSISTENT	<input checked="" type="checkbox"/> H IGNITABLE	<input type="checkbox"/> L INCOMPATIBLE
		<input type="checkbox"/> M NOT APPLICABLE

EPA FORM 2070-1 (17 81)



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE WI 02 SITE NUMBER 980678114

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA

02 ☒ OBSERVED (DATE 9-19-90) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

SITE HAS BEEN DISTURBED BY Landfill operations  
Some evidence of stressed/absent vegetation  
was observed. See Section 5.6 in Narrative

01 ☒ K. DAMAGE TO FAUNA

02 ☐ OBSERVED (DATE \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

None Reported or observed.  
See Section 5.3 and Section 5.6

01 ☒ L. CONTAMINATION OF FOOD CHAIN

02 ☐ OBSERVED (DATE \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

see Section 5.3 and Section 5.6  
in Narrative

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES

02 ☐ OBSERVED (DATE 9/18-19/90) ☒ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

Soils: Runoff Standing liquids - leaking drums  
03 POPULATION POTENTIALLY AFFECTED: 14,275  
The site is causing a release to groundwater  
See Sections 5.2, 5.4 and 5.5 in Narrative

01 ☒ N. DAMAGE TO OFFSITE PROPERTY

02 ☐ OBSERVED (DATE 9/18-19/90) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

portions of the original site are now private.  
owned and developed with multi-family residences.

01 ☒ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs

02 ☐ OBSERVED (DATE \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

Runoff from the site is collected and discharged  
through a municipal storm sewer system

01 ☒ P. ILLEGAL UNAUTHORIZED DUMPING

02 ☐ OBSERVED (DATE \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

The site was not well secured or supervised  
during the initial years of operation.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL OR ALLEGED HAZARDS

The site was approved for the disposal of  
toxic and hazardous wastes. Disposal of these  
waste types are documented.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 55,000 within 4-miles

IV. COMMENTS NONE

V. SOURCES OF INFORMATION (Cite specific references, e.g. State/Local agency reports, etc.)

1. WDNIR Solid Waste Case Files
2. WDNIR SSE, Sept. 18-19, 1990
3. 4-mile Radius Map - Waukesha L.F. SSE Report, August 1991



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A GROUNDWATER CONTAMINATION 02 ☐ OBSERVED DATE 9/18-19/1990 ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED 14,275 04 NARRATIVE DESCRIPTION

*SITE MONITORING wells and off-site private wells  
indicate a release from the site.  
See Section 5.2 in NARRATIVE.*

01 ☒ B SURFACE WATER CONTAMINATION 02 ☐ OBSERVED DATE \_\_\_\_\_ ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED 14418 04 NARRATIVE DESCRIPTION

*RUNOFF from the site is collected and discharged by  
a municipal storm sewer system to the Fox River.  
Population is within 1-mile*

01 ☒ C CONTAMINATION OF AIR 02 ☐ OBSERVED DATE \_\_\_\_\_ ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED 5024 04 NARRATIVE DESCRIPTION

*See Narrative Section 5.4.  
Targets within 1/2 mile*

01 ☒ D FIRE EXPLOSIVE CONDITIONS 02 ☐ OBSERVED DATE \_\_\_\_\_ ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED 14418 04 NARRATIVE DESCRIPTION

*Targets within 1-mile  
See Narrative Section 5.5*

01 ☒ E DIRECT CONTACT 02 ☐ OBSERVED DATE \_\_\_\_\_ ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED 572 04 NARRATIVE DESCRIPTION

*Target populations reside on portions of site  
See Narrative Section 5.6*

01 ☒ F CONTAMINATION OF SOIL 02 ☒ OBSERVED DATE 9/18-19/90 ☐ POTENTIAL ☐ ALLEGED  
03 AREA POTENTIALLY AFFECTED 43 04 NARRATIVE DESCRIPTION

*See Narrative Section 5.6*

01 ☒ G DRINKING WATER CONTAMINATION 02 ☐ OBSERVED DATE 9-118-19/90 ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED 14,275 04 NARRATIVE DESCRIPTION

*private wells sampled during the SSI indicated  
TAL compounds and TAL analytes above health  
standards. See Narrative Section 5.2*

01 ☒ H WORKER EXPOSURE INJURY 02 ☐ OBSERVED DATE \_\_\_\_\_ ☐ POTENTIAL ☐ ALLEGED  
03 WORKERS POTENTIALLY AFFECTED \_\_\_\_\_ 04 NARRATIVE DESCRIPTION

*there are no workers currently on-site.  
The City of Waukesha is proposing to construct  
a park shelter and baseball diamonds on-site*

01 ☒ I POPULATION EXPOSURE INJURY 02 ☐ OBSERVED DATE \_\_\_\_\_ ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED 55,000 04 NARRATIVE DESCRIPTION

*Total Population within 4-miles of site*



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION  
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
<input type="checkbox"/> A NPDES				
<input type="checkbox"/> B UIC				
<input type="checkbox"/> C AIR				
<input type="checkbox"/> D RCRA				
<input type="checkbox"/> E RCRA INTERIM STATUS				
<input type="checkbox"/> F SPCC PLAN				
<input checked="" type="checkbox"/> G STATE <i>Specific: Solid Waste</i>	<i>LC # 521</i>	<i>8-24-70</i>	<i>Sept. 1978</i>	<i>Solid Waste Facility License</i>
<input type="checkbox"/> H LOCAL <i>Specific:</i>				
<input type="checkbox"/> I OTHER <i>Specific:</i>				
<input type="checkbox"/> J NONE				

III. SITE DESCRIPTION

01 STORAGE/ DISPOSAL: (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT: (Check all that apply)	05 OTHER
<input type="checkbox"/> A SURFACE IMPOUNDMENT			<input type="checkbox"/> A INCINERATION	<input checked="" type="checkbox"/> A BUILDINGS ON SITE <i>Several multi-family Apartment Buildings</i>
<input type="checkbox"/> B PILES			<input type="checkbox"/> B UNDERGROUND INJECTION	
<input type="checkbox"/> C DRUMS ABOVE GROUND			<input type="checkbox"/> C CHEMICAL/PHYSICAL	06 AREA OF SITE
<input type="checkbox"/> D TANK ABOVE GROUND			<input type="checkbox"/> D BIOLOGICAL	
<input type="checkbox"/> E TANK BELOW GROUND			<input type="checkbox"/> E WASTE OIL PROCESSING	<i>43</i> Acres
<input checked="" type="checkbox"/> F LANDFILL	<i>43 acres</i>		<input type="checkbox"/> F SOLVENT RECOVERY	
<input type="checkbox"/> G LANDFARM			<input type="checkbox"/> G OTHER RECYCLING/RECOVERY	
<input type="checkbox"/> H OPEN DUMP			<input type="checkbox"/> H OTHER <i>Specific:</i>	
<input type="checkbox"/> I OTHER <i>Specific:</i>				

07 COMMENTS

*The facility was developed within a former gravel pit. Waste was disposed within groundwater on some portions of the site.*

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)
<input type="checkbox"/> A ADEQUATE, SECURE <input checked="" type="checkbox"/> B MODERATE <input type="checkbox"/> C INADEQUATE, POOR <input type="checkbox"/> D INSECURE UNSOUND DANGEROUS
02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.
<i>The site does not have a clay liner or leachate or gas collection system.</i>

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
02 COMMENTS	<i>Waste is covered and capped. Site is not fenced</i>

VI. SOURCES OF INFORMATION (Check specific references & give date/ time, name of person, address, phone)

- 1. WDNR Solid Waste Case files*
- 2. WDNR SSE Conducted Sept. 18-19, 1990*





POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY <small>CHECK AS APPLICABLE</small>	02 STATUS	03 DISTANCE TO SITE															
<table><tr><td>SURFACE</td><td>WELL</td></tr><tr><td>COMMUNITY A <input type="checkbox"/></td><td>B <input checked="" type="checkbox"/></td></tr><tr><td>NON-COMMUNITY C <input type="checkbox"/></td><td>D <input type="checkbox"/></td></tr></table>	SURFACE	WELL	COMMUNITY A <input type="checkbox"/>	B <input checked="" type="checkbox"/>	NON-COMMUNITY C <input type="checkbox"/>	D <input type="checkbox"/>	<table><tr><td>ENDANGERED</td><td>AFFECTED</td><td>MONITORED</td></tr><tr><td>A <input type="checkbox"/></td><td>B <input type="checkbox"/></td><td>C <input checked="" type="checkbox"/></td></tr><tr><td>D <input type="checkbox"/></td><td>E <input type="checkbox"/></td><td>F <input type="checkbox"/></td></tr></table>	ENDANGERED	AFFECTED	MONITORED	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input checked="" type="checkbox"/>	D <input type="checkbox"/>	E <input type="checkbox"/>	F <input type="checkbox"/>	A 1800 ft B 300 ft
SURFACE	WELL																
COMMUNITY A <input type="checkbox"/>	B <input checked="" type="checkbox"/>																
NON-COMMUNITY C <input type="checkbox"/>	D <input type="checkbox"/>																
ENDANGERED	AFFECTED	MONITORED															
A <input type="checkbox"/>	B <input type="checkbox"/>	C <input checked="" type="checkbox"/>															
D <input type="checkbox"/>	E <input type="checkbox"/>	F <input type="checkbox"/>															

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☒ A ONLY SOURCE FOR DRINKING ☐ B DRINKING ☐ C COMMERCIAL, INDUSTRIAL, IRRIGATION ☐ D NOT USED UNUSEABLE  
Other sources available Other sources available  
COMMERCIAL, INDUSTRIAL, IRRIGATION  
NO OTHER WATER SOURCES AVAILABLE

02 POPULATION SERVED BY GROUND WATER 14,275 03 DISTANCE TO NEAREST DRINKING WATER WELL 300 ft

04 DEPTH TO GROUNDWATER 9-36 (m)	05 DIRECTION OF GROUNDWATER FLOW E (Deep) NW (Shallow)	06 DEPTH TO AQUIFER OF CONCERN 20 (m)	07 POTENTIAL YIELD OF AQUIFER UNK (gpd)	08 SOLE SOURCE AQUIFER <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
-------------------------------------	--	--	--	---

09 DESCRIPTION OF WELLS (including usage, depth, and location relative to population and buildings)

Most of the area immediately surrounding the site is served by a municipal water supply with wells withdrawing from the sandstone (deep) aquifer. Private wells continue to be used in the town of Waukesha (SW of site). These wells are shallow and are completed within the dolomite aquifer (aquifer of concern) at depths from 100 to 150 feet.

10 RECHARGE AREA

☒ YES ☐ NO COMMENTS Groundwater is recharged by precipitation at the site.

11 DISCHARGE AREA

☐ YES ☒ NO COMMENTS Groundwater is believed to discharge to the nearest surface water body (Fox River)

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A RESERVOIR, RECREATION, DRINKING WATER SOURCE ☐ B IRRIGATION ECONOMICALLY IMPORTANT RESOURCES ☐ C COMMERCIAL, INDUSTRIAL ☐ D NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME	AFFECTED	DISTANCE TO SITE
Fox River	Recreation use	3/4 (mi)
Pebble Brook	Recreation use	1.0 (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE A 14418 <small>NO. OF PERSONS</small>	TWO (2) MILES OF SITE B 25023 <small>NO. OF PERSONS</small>	THREE (3) MILES OF SITE C 39194 <small>NO. OF PERSONS</small>
--	---	---

02 DISTANCE TO NEAREST POPULATION

ON-SITE

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

7890

04 DISTANCE TO NEAREST OFF-SITE BUILDING

Residences are on-site (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., urban, suburban, densely populated urban area)

The site is located in an area of high density population immediately north and east of the site. Commercial/industrial areas are also found immediately west and south. The entire city of Waukesha is encompassed by the 4-mile radius. Outlying areas have moderate density populations.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

V. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE Check one:

☐ A  $10^{-5} - 10^{-6}$  cm/sec ☐ B  $10^{-4} - 10^{-5}$  cm/sec ☐ C  $10^{-3} - 10^{-2}$  cm/sec ☒ D GREATER THAN  $10^{-2}$  cm/sec

02 PERMEABILITY OF BEDROCK Check one:

☐ A IMPERMEABLE ☐ B RELATIVELY IMPERMEABLE ☐ C RELATIVELY PERMEABLE ☐ D VERY PERMEABLE  
(Less than  $10^{-5}$  cm/sec) ( $10^{-4} - 10^{-5}$  cm/sec) ( $10^{-2} - 10^{-4}$  cm/sec) (Greater than  $10^{-2}$  cm/sec)

03 DEPTH TO BEDROCK

25-50 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE

15-46 (ft)

05 SOIL pH

UNKNOWN

06 NET PRECIPITATION

2.0 (in)

07 ONE YEAR 24 HOUR RAINFALL

2.33 (in)

08 SLOPE

SITE SLOPE

0-2

DIRECTION OF SITE SLOPE

S

TERRAIN AVERAGE SLOPE

Variable

09 FLOOD POTENTIAL

SITE IS IN NO FLOODPLAIN

10

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY  
N.A.

11 DISTANCE TO WETLANDS: (in miles)

ESTUARINE

OTHER

A N.A. (mi)

B 3/4 (mi)

12 DISTANCE TO CRITICAL HABITAT, or endangered species:

STATE

ENDANGERED SPECIES: Prenanthes aspera

13 LAND USE IN VICINITY

DISTANCE TO

COMMERCIAL/INDUSTRIAL

RESIDENTIAL AREAS, NATIONAL STATE PARKS,  
FORESTS, OR WILDLIFE RESERVES

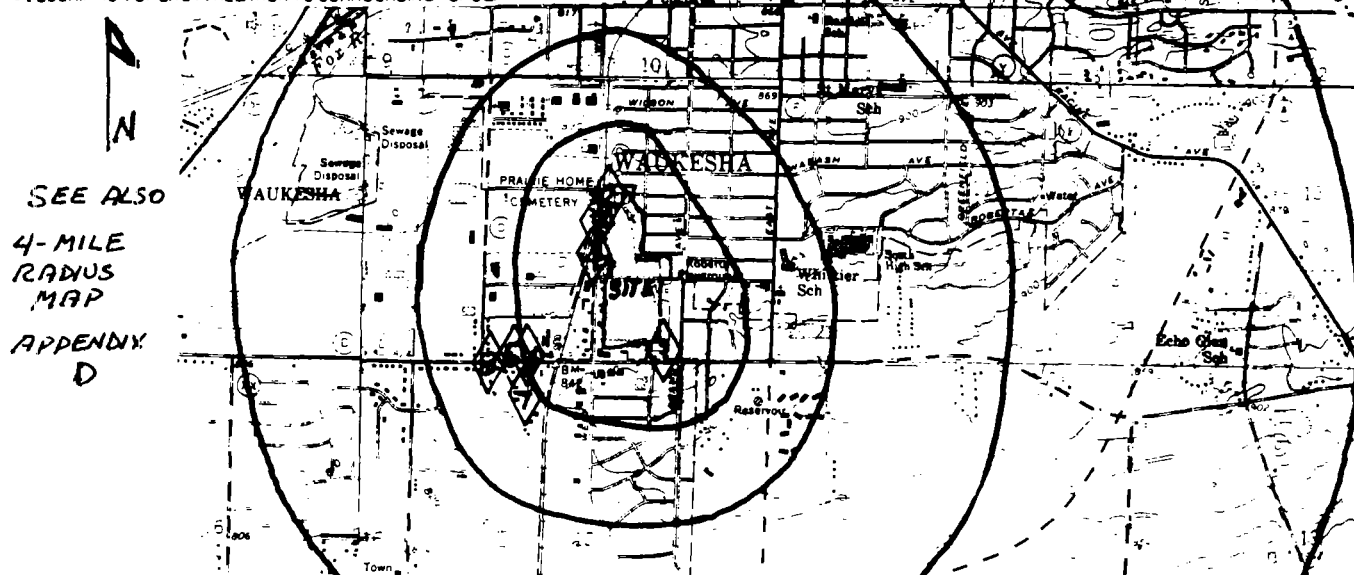
AGRICULTURAL LANDS  
PRIME AG LAND AG LAND

A On-site (mi)

B On-site (mi)

C — (mi) D 2/3 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY



VII. SOURCES OF INFORMATION Cite specific references to site files, reports, maps, etc.

1. WDNR Solid Waste Case Files
2. WDNR, April 1988, Preliminary Assessment Guidance Document
3. WDNR 4-mile Radius Map, Waukesha Sanitary Landfill SSZ Report, August 1991
4. Nicotera, 6-20-91, Endangered Resources Memorandum



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	8	ORGANICS: Environ. Control Tech. Corp.  INORGANICS: Chem Tech Consulting Group.	
SURFACE WATER			DATA IN REPORT
WASTE			
AIR			DATA IN REPORT
RUNOFF			
SPILL			
SOIL	4		
VEGETATION		ORGANICS: ENCOT	DATA IN REPORT
OTHER sub-soil	3	INORGANICS: CEIMIC	DATA IN REPORT

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
ORGANIC VAPOR	HNU-HW-101 - NO Readings significantly above background

IV. PHOTOGRAPHS AND MAPS

01 TYPE <input checked="" type="checkbox"/> GROUND <input type="checkbox"/> AERIAL	02 IN CUSTODY OF <u>WDNR SED office - Milwaukee</u> <small>NAME OF ORGANIZATION OR INDIVIDUAL</small>
03 MAPS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	04 LOCATION OF MAPS <u>WDNR Solid Waste Case Files, Madison / Milwaukee</u>

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

other water quality  
field Parameters:  
1. pH  
2. Conductivity  
3. Temperature

VI. SOURCES OF INFORMATION (To include references, e.g., 11/19/90, 11/19/90, 11/19/90, 11/19/90)

1. WDNR Solid Waste Case Files - Waukesha Sanitary Landfill
2. WDNR SSI conducted SEPT, 18-19, 1990



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

II. CURRENT OWNERS

PARENT COMPANY N.A.

01 NAME CITY OF WAUKESHA	02 D+B NUMBER	03 NAME	04 D+B NUMBER
05 STREET ADDRESS (P.O. Box, RFD, etc.) 201 DELAFIELD ST.	06 SIC CODE	07 STREET ADDRESS (P.O. Box, RFD, etc.)	08 SIC CODE
09 CITY WAUKESHA.	10 STATE 11 ZIP CODE WI 53188	12 CITY	13 STATE 14 ZIP CODE

non responsive

01 NAME MILWAUKEE	02 D+B NUMBER	03 NAME	04 D+B NUMBER
05 STREET ADDRESS (P.O. Box, RFD, etc.)	06 SIC CODE	07 STREET ADDRESS (P.O. Box, RFD, etc.)	08 SIC CODE
09 CITY MILWAUKEE	10 STATE 11 ZIP CODE WI 53233	12 CITY	13 STATE 14 ZIP CODE

non responsive

01 NAME WAUKESHA	02 D+B NUMBER	03 NAME	04 D+B NUMBER
05 STREET ADDRESS (P.O. Box, RFD, etc.)	06 SIC CODE	07 STREET ADDRESS (P.O. Box, RFD, etc.)	08 SIC CODE
09 CITY WAUKESHA	10 STATE 11 ZIP CODE WI 53186	12 CITY	13 STATE 14 ZIP CODE

non responsive

01 NAME WAUKESHA	02 D+B NUMBER	03 NAME	04 D+B NUMBER
05 STREET ADDRESS (P.O. Box, RFD, etc.)	06 SIC CODE	07 STREET ADDRESS (P.O. Box, RFD, etc.)	08 SIC CODE
09 CITY WAUKESHA	10 STATE 11 ZIP CODE WI 53186	12 CITY	13 STATE 14 ZIP CODE

III. PREVIOUS OWNERS (List most recent first)

IV. REALTY OWNERS (List most recent first)

non responsive

01 NAME WAUKESHA	02 D+B NUMBER	03 NAME UNKNOWN	04 D+B NUMBER
05 STREET ADDRESS (P.O. Box, RFD, etc.)	06 SIC CODE	07 STREET ADDRESS (P.O. Box, RFD, etc.)	08 SIC CODE
09 CITY WAUKESHA	10 STATE 11 ZIP CODE WI 53186	12 CITY	13 STATE 14 ZIP CODE

non responsive

01 NAME	02 D+B NUMBER	03 NAME	04 D+B NUMBER
05 STREET ADDRESS (P.O. Box, RFD, etc.)	06 SIC CODE	07 STREET ADDRESS (P.O. Box, RFD, etc.)	08 SIC CODE
09 CITY	10 STATE 11 ZIP CODE	12 CITY	13 STATE 14 ZIP CODE

non responsive

01 NAME	02 D+B NUMBER	03 NAME	04 D+B NUMBER
05 STREET ADDRESS (P.O. Box, RFD, etc.)	06 SIC CODE	07 STREET ADDRESS (P.O. Box, RFD, etc.)	08 SIC CODE
09 CITY	10 STATE 11 ZIP CODE	12 CITY	13 STATE 14 ZIP CODE

V. SOURCES OF INFORMATION (List sources of information used to identify site)

1. WDNIZ SOLID WASTE CASE FILE - WAUKESHA SANITARY LANDFILL
2. CITY OF WAUKESHA TAX FILE INFORMATION



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

II. PAST RESPONSE ACTIVITIES

01 <input type="checkbox"/> A WATER SUPPLY CLOSED 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> B TEMPORARY WATER SUPPLY PROVIDED 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> C PERMANENT WATER SUPPLY PROVIDED 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> D SPILLED MATERIAL REMOVED 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> E CONTAMINATED SOIL REMOVED 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> F WASTE REPACKAGED 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> G WASTE DISPOSED ELSEWHERE 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> H ON SITE BURIAL 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> I IN SITU CHEMICAL TREATMENT 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> J IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> K IN SITU PHYSICAL TREATMENT 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> L ENCAPSULATION 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> M EMERGENCY WASTE TREATMENT 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> N CUTOFF WALLS 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> O EMERGENCY DIKING SURFACE WATER DIVERSION 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> P CUTOFF TRENCHES/SUMP 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> Q SUBSURFACE CUTOFF WALL 04 DESCRIPTION N.A.	02 DATE _____	03 AGENCY _____



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

WI 980678114

II. PAST RESPONSE ACTIVITIES (continued)

01 ☒ R BARRIER WALLS CONSTRUCTED  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ S CAPPING/COVERING  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ T BULK TANKAGE REPAIRED  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ U GROUT CURTAIN CONSTRUCTED  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ V BOTTOM SEALED  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ W GAS CONTROL  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ X FIRE CONTROL  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ Y LEACHATE TREATMENT  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ Z AREA EVACUATED  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ 1 ACCESS TO SITE RESTRICTED  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ 2 POPULATION RELOCATED  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

N.A.

01 ☒ 3 OTHER REMEDIAL ACTIVITIES  
04 DESCRIPTION

02 DATE \_\_\_\_\_

03 AGENCY \_\_\_\_\_

NONE

III. SOURCES OF INFORMATION (Cite specific references e.g. State/MSL Sampling Analysis Reports)

WDNLSOLID WASTE CASE FILE - WAUKESHA SANITARY LANDFILL



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY ENFORCEMENT ACTION ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL STATE LOCAL REGULATORY ENFORCEMENT ACTION

NO ENFORCEMENT ACTIONS RELATED TO SUBSTANTIVE  
VIOLATIONS HAVE BEEN TAKEN

III. SOURCES OF INFORMATION 01 TO 000000 00000000 0 2 11/18/1988 140000 000000 000000

WDNR SOLID WASTE CASE FILE - WAUKESHA SANITARY LANDFILL



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

II. CURRENT OPERATOR Provide if different from owner

OPERATOR'S PARENT COMPANY 100% owned

01 NAME NONE	02 D-B NUMBER	10 NAME N.A.	11 D-B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	14 CITY	15 STATE 16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER		

III. PREVIOUS OPERATOR(S) List most recent first. Provide only 4 if more than 4 operators

PREVIOUS OPERATORS' PARENT COMPANIES 100% owned

01 NAME CITY OF WAUKESHA	02 D-B NUMBER	10 NAME N.A.	11 D-B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 201 DELAFIELD ST.	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
05 CITY WAUKESHA	06 STATE WI 07 ZIP CODE 53188	14 CITY	15 STATE 16 ZIP CODE
08 YEARS OF OPERATION 1960's - 1975	09 NAME OF OWNER non responsive		

01 NAME UNKNOWN	02 D-B NUMBER	10 NAME	11 D-B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	14 CITY	15 STATE 16 ZIP CODE
08 YEARS OF OPERATION 1956-1960's	09 NAME OF OWNER DURING THIS PERIOD non responsive		

01 NAME	02 D-B NUMBER	10 NAME	11 D-B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	14 CITY	15 STATE 16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD		

IV. SOURCES OF INFORMATION (Cite specific references e.g. 11201/Reg. sample analysis report)

WDNR SOLID WASTE CASE FILE - WAUKESHA SANITARY LANDFILL





POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
WI 980678114

II. ON-SITE GENERATOR

01 NAME UNKNOWN	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME CITY OF WAUKESHA	02 D+B NUMBER	01 NAME	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD, etc.) 201 DELAFIELD ST.	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD, etc.)	04 SIC CODE		
05 CITY WAUKESHA	06 STATE WI	07 ZIP CODE 53188	05 CITY	06 STATE	07 ZIP CODE
01 NAME KOPPERS COMPANY INC.	02 D+B NUMBER	01 NAME WIS. DEPT. OF TRANSPORTATION	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD, etc.) KOPPERS BUILDING	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD, etc.) 141 NW BARSTOW ST.	04 SIC CODE		
05 CITY PITTSBURG	06 STATE Pa.	07 ZIP CODE 15219	05 CITY WAUKESHA	06 STATE WI	07 ZIP CODE 53188

IV. TRANSPORTER(S)

01 NAME CITY OF WAUKESHA	02 D+B NUMBER	01 NAME	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD, etc.) 201 DELAFIELD ST.	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD, etc.)	04 SIC CODE		
05 CITY WAUKESHA	06 STATE WI	07 ZIP CODE 53188	05 CITY	06 STATE	07 ZIP CODE
01 NAME UNKNOWN	02 D+B NUMBER	01 NAME	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD, etc.)	04 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (See specific references to site files, reports, etc.)

1. WDNR SOLID WASTE CASE FILE-WAUKESHA SANITARY LANDFILL
2. MILWAUKEE PHONE DIRECTORY

## 6. BIBLIOGRAPHY AND REFERENCE LIST

1. Exploration Technology Inc. October 4, 1990, Summary of drilling Services and Monitor Well Installation-Waukesha Sanitary Dump Site, Waukesha, Wisconsin.
2. Gonthier, Joseph, October, 1975, Groundwater Resources of Waukesha County, Wisconsin.
3. Holmstrom, B.K. and Erickson, R.M. for U.S.G.S. Water Data Report, Water Resources Data Wisconsin, Water Year 1989.
4. Mickelson, David M., Clayton, Lee, Baker, Robert W., Mode, William N., and Schneider, Allen F., July 1984, Pleistocene Stratigraphic Units of Wisconsin. paper 84-1
5. Nicotera, Ronald F., June 20, 1991, WDNR Memorandum to John Krahling: Endangered Resources Information Review, Waukesha Sanitary Landfill et. al.
6. WDNR, Solid Waste Case File for Waukesha Sanitary Landfill, Waukesha, Wisconsin.
7. WDNR, December 27, 1984, Potential Waste Site Preliminary Assessment Waukesha Sanitary Landfill, Waukesha, Wisconsin, prepared by Elizabeth Duchelle, Milwaukee, Wisconsin.
8. WDNR, Screening Site Inspection for Waukesha Sanitary Landfill Waukesha, Wisconsin conducted August 15-18 and September 17-18, 1990.
9. WDNR, 4-Mile radius map for Waukesha Sanitary Landfill (Appendix D), Genesee, Hartland, Muskego, and Waukesha - USGS, Quadrangle Maps, 7.5 Minute Series: Scale 1:24000).
10. WDNR Water Supply Well Information, including: Public Water Supply Data Book, prepared by Eric Syftestad, WDNR, Madison, Wisconsin, 1985.
11. WDNR, April 7, 1988, Preliminary Assessment Guidance Document
12. WDNR, July 23, 1990, Superfund Site Sampling Plan-Waukesha Sanitary Landfill

13. WDNR, August, 1991, Screening Site Inspection Report, Waukesha Sanitary Landfill
14. U.S. Department of Commerce, Bureau of Census, 1980, Census of Population, General Population Characteristics - Wisconsin.
15. WDNR Fish Sampling Data Base, Fox River Basin, Compilation of all years data.

## POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

### General Information

The Potential Hazardous Waste Site, Site Inspection Report form is used to record information collected during, or associated with, an inspection of the site and other information about responsible parties and past response activities.

The Site Inspection Report form contains eleven parts:

Part 1 — Site Location and Inspection Information

Part 2 — Waste Information

Part 3 — Description of Hazardous Conditions and Incidents

Part 4 — Permit and Descriptive Information

Part 5 — Water, Demographic, and Environmental Data

Part 6 — Sample and Field Information

Part 7 — Owner Information

Part 8 — Operator Information

Part 9 — Generator/Transporter Information

Part 10 — Past Response Activities

Part 11 — Enforcement Information

Part 1 — Site Location and Inspection Information contains all of the data elements also contained on the Site Identification and Preliminary Assessment forms required to add a site to the automated Site Tracking System (STS). It is therefore possible to add a site to STS at the Site Inspection stage. Instructions are given below.

Part 2 — Waste Information and Part 3 — Description of Hazardous Conditions and Incidents are used to record specific information about substances, amounts, hazards, and targets, e.g., population potentially affected. Parts 2 and 3 are also contained in the Potential Hazardous Waste Site, Preliminary Assessment form. Information recorded on Part 2 and Part 3 during a preliminary assessment may be updated, added, deleted, or corrected on the Site Inspection Report form.

An Appendix with feedstock names and CAS Numbers and the most frequently cited hazardous substances and CAS Numbers is located behind the instructions for the Site Inspection Report.

A number of the data items collected throughout the Site Inspection Report support the Site Ranking Model. The majority of these data items are found in Part 5 — Water, Demographic, and Environmental Data.

### General Instructions

1. Complete the Site Inspection Report form as completely as possible.

2. Starred items (\*) are required before inspection information can be added to STS. The system will not accept incomplete inspection information.

3. To add a site to STS at the Site Inspection stage, write "New" across the top of the form and complete items II-01, 02, 03, 04, and 06, Site Name and Location, II-09 Coordinates, and II-10, Type of Ownership.

4. Data items carried in STS, which are identical to those on the Site Identification and Preliminary Assessment forms and which can be added, deleted, or changed using the

Site Inspection Report form, are indicated with a pound sign (#). To ensure that the proper action is taken, outline the item(s) to be added, deleted, or changed with a bright color and indicate the proper action with "A" (add), "D" (delete) or "C" (change).

5. There are two options available for adding, deleting, or changing information supplied on the Site Inspection Report form. The first is to use a new Site Inspection Report form, completing only those items to be added, deleted, or changed. Mark the form clearly, using "A", "D", or "C", to indicate the action to be taken. If only data in STS are to be altered, the Site Source Data Report may be used. Using the report, mark clearly the items to be changed and the action to be taken.

### Detailed Instructions

#### Part 1 Site Location and Inspection Information

I. Identification: Identification (State and Site Number) is the site record key, or primary identifier, for the site. Site records in the STS are updated based on Identification. It is essential that State and Site Number are correctly entered on each form.

\*I-01 State: Enter the two character alpha FIPS code for the state in which the site is located. It must be identical to State on the Site Identification form.

\*I-02 Site Number: Enter the ten character alphanumeric code for sites which have a Dun and Bradstreet or EPA "user" Dun and Bradstreet number or the ten character numeric GSA identification code for federal sites. The Site Number must be identical to the Site Number on the Site Identification and Preliminary Assessment forms.

II. Site Name and Location: If Site Name and Location information require no additions or changes, these items are not required on the Site Inspection Report form. However, completing these items will facilitate use of the completed form and records management procedures.

#II-01 Site Name: Enter the legal, common, or descriptive name of the site.

#II-02 Site Street: Enter the street address and number (if appropriate) where the site is located. If the precise street address is unavailable for this site, enter brief direction identifier, e.g., NW Jct I-295 & US 99; Post Rd, 5 mi W of Rt. 5.

#II-03 Site City: Enter the city, town, village, or other municipality in which the site is located. If the site is not located in a municipality, enter the name of the municipality (or place) which is nearest the site or which most easily locates the site.

#II-04 Site State: Enter the two character alpha FIPS code for the state in which the site is located. The code must be the same as in item I-01.

#II-05 Site Zip Code: Enter the five character numeric zip code for the postal zone in which the site is located.

- III-06 Site County: Enter the name of the county, parish (Louisiana), or borough (Alaska) in which the site is located.
- III-07 County Code: Enter the three character numeric FIPS county code for the county, parish, or borough in which the site is located. The regional data analyst can furnish this data item.
- III-08 Site Congressional District: Enter the two character number for the congressional district in which the site is located.
- \*III-09 Coordinates: Enter the Coordinates, Latitude and Longitude, of the site in degrees, minutes, seconds, and tenths of seconds. If a tenth of a second is insignificant at this site, enter "0" in the tenths position.
- III-10 Type of Ownership: Check the appropriate box to indicate the type of site ownership. If the site is under the jurisdiction of an activity of the federal government, enter the name of the department, agency, or activity. If Other is indicated, specify the type of ownership and name.
- III. Inspection Information
- \*III-01 Date of Inspection: Enter the date the inspection occurred, or began for multiple day inspections.
- \*III-02 Site Status: Check the appropriate box(es) to indicate the current status of the site. Active sites are those which treat, store, or dispose of wastes. Check Active for those active sites with an inactive storage or disposal area. Inactive sites are those at which treatment, storage, or disposal activities no longer occur.
- III-03 Years of Operation: Enter the beginning and ending years (or beginning only if operations at the site are on-going), e.g., 1878/1932, of site operation. Check Unknown if years of operation are not known.
- \*III-04 Agency Performing Inspection: Check the appropriate box(es) to indicate parties participating in the inspection. If contractors participate, provide the name of the firm(s).
- III-05 Chief Inspector: Enter the name of the chief, or lead inspector.
- III-06 Title: Enter the Chief Inspector's title, e.g., Team Leader, FIT team.
- III-07 Organization: Enter the name of the organization where the Chief Inspector is employed, e.g., EPA - Region 4, VA State Health Dept., Environmental Research Co.
- III-08 Telephone Number: Enter the Chief Inspector's area code and local commercial telephone number.
- III-09 Other Inspectors: Enter the names of other parties participating in the inspection.
- III-10 Title: Enter the titles of other parties participating in the inspection.
- III-11 Organization: Enter the names of the organizations where other parties participating in the inspection are employed.
- III-12 Telephone Number: Enter the area code and local commercial telephone numbers of other parties participating in the inspection.
- III-13 Site Representatives Interviewed: Enter the names of individuals representing responsible parties interviewed in connection with the inspection. Interviews do not necessarily occur during the inspection.
- III-14 Title: Enter the titles of the individuals interviewed.
- III-15 Address: Enter the business, mailing, or residential addresses of the individuals interviewed.
- III-16 Telephone Number: Enter the area code and local commercial telephone numbers of the individuals interviewed.
- III-17 Access Gained By: Check the appropriate box to indicate whether access to the site was gained through permission or warrant.
- III-18 Time of Inspection: Using a 24-hour clock, enter the time the inspection began, e.g., for 3:24 p.m. enter 1524.
- III-19 Weather Conditions: Describe the weather conditions during the site inspection, especially any unusual conditions which might affect results or observations taken.
- IV. Information Available From
- IV-01 Contact: Enter the name of the individual who can provide information about the site.
- IV-02 Of: If appropriate, enter the name of the public or private agency, firm, or company and the organization within the agency, firm, or company of the individual named as Contact.
- IV-03 Telephone Number: Enter the area code and local telephone number of the individual named as contact.
- IV-04 Person Responsible for Site Inspection Report Form: Enter the name of the individual who was responsible for the information entered on the Site Inspection Report form. The person responsible for the Site Inspection Report form may be different from the individual who prepared the form.
- IV-05 Agency: Enter the name of the Agency where the individual who is responsible for the Site Inspection Report form is employed.
- IV-06 Organization: Enter the name of the organization within the Agency.
- IV-07 Telephone Number: Enter the area code and local telephone number of the individual who is responsible for the Site Inspection Report form.
- IV-08 Date: Enter the date the Site Inspection Report form was prepared.
- Part 2 Waste Information
- \*I. Identification: Refer to Part 1-1.
- II. Waste Status, Quantities, and Characteristics: Waste Status, Quantities, and Characteristics provide information about the physical structure and form of the waste, measures of gross amounts at the site, and the hazards posed by the waste, considering acute and chronic health effects and mobility along a pathway.

- \*II-01 Physical States: Check the appropriate box(es) to indicate the state(s) of waste present at the site. If Other is indicated, specify the physical state of the waste.
- \*II-02 Waste Quantity at Site: Enter estimates of amounts of waste at the site. Estimates may be in weight (Tons) or volume (Cubic Yards or Number of Drums). Use as many entries as are appropriate; however, measurements must be independent. For example, do not measure the same amounts of waste as both tons and cubic yards.
- \*II-03 Waste Characteristics: Check all appropriate entries to indicate the hazards posed by waste at the site. If waste at the site poses no hazard, check Not Applicable.
- III. **Waste Category:** General categories of waste typically found are listed here. Enter the estimated gross amount of each category of waste and the appropriate unit of measure.
- \*III-01 Gross Amount: Gross Amount is the estimate of the amount of the waste category found at the site. Estimates should be furnished in metric tons (MT), tons (TN), cubic meters (CM), cubic yards (CY), drums (DR), acres (AC), acre feet (AF), liters (LT), or gallons (GA). Enter the estimated amount next to the appropriate waste category.
- \*III-02 Unit of Measure: Enter the appropriate unit of measure, MT (metric tons), TN (tons), CM (cubic meters), CY (cubic yards), DR (number of drums), AC (acres), AF (acre feet), LT (liters), or GA (gallons) next to the estimate of gross amount.
- III-03 Comments: Comments may be used to further explain, or provide additional information, about particular waste categories.
- IV. **Hazardous Substances:** Specific hazardous, or potentially hazardous, chemicals, mixtures, and substances found at the site are listed here. For each substance listed those data items marked with an "at" sign (@) must be included.
- @IV-01 Category: Enter in front of the substance name the three character waste category from Section III which best describes the substance, e.g., OLW (Oily Waste).
- @IV-02 Substance Name: Enter one of the following: the name of the substance registered with the Chemical Abstract Service, the common or accepted abbreviation of the substance, the generic name of the substance, or commercial name of the substance.
- @IV-03 CAS Number: Enter the number assigned to the substance when it was registered with the Chemical Abstract Service. Refer to the Appendix for most frequently cited CAS Numbers. CAS Numbers must be furnished for each substance listed. If a CAS Number for this substance has not been assigned, enter "999".
- @IV-04 Storage/Disposal Method: Enter the type of storage or disposal facility in which the substance was found: SI (surface impoundment, including pits, ponds, and lagoons), PL (pile), DR (drum), TK (tank), LF (landfill), LM (landfarm), OD (open dump).

IV-05 Concentration: Enter the concentration of the substance found in samples taken at the site.

IV-06 Measure of Concentration: Enter the appropriate unit of measure for the measured concentration of the substance found in the sample, e.g., MG/L, UG/L.

#### V. Feedstocks

V-01 Feedstock Name: If feedstocks, or substances derived from one or more feedstocks, are present at the site, enter the name of each feedstock found. See the Appendix for the feedstock list.

V-02 CAS Number: Enter the CAS Number for each feedstock named. See the Appendix for feedstock CAS Numbers.

VI. **Sources of Information:** List the sources used to obtain information for this form. Sources cited may include: sample analysis, reports, inspections, official records, or other documentation. Sources cited provide the basis for information entered on the form and may be used to obtain further information about the site.

#### Part 3 Description of Hazardous Conditions and Incidents

\*I. Identification: Refer to Part 1-I.

#### II. Hazardous Conditions and Incidents:

II-01 Hazards: Indicate each hazardous, or potentially hazardous, condition known, or claimed, to exist at the site.

II-02 Observed, Potential, or Alleged: Check Observed and enter the date, or approximate date, of occurrence if a release of contaminants to the environment, or some other hazardous incident, is known to have occurred. In cases of a continuing release, e.g., groundwater contamination, enter the date, or approximate date, the condition first became apparent. If conditions exist for a potential release, *check potential. Check Alleged for hazardous, or potentially hazardous, conditions claimed to exist at the site.*

II-03 Population Potentially Affected: For each hazardous condition at the site, enter the number of people potentially affected. For Soil enter the number of acres potentially affected.

II-04 Narrative Description: Provide a narrative description, or explanation, of each condition. Include any additional information which further explains the condition.

II-05 Description of Any Other Known, Potential, or Alleged Hazards: Provide a narrative description of any other hazardous, or potentially hazardous, conditions at the site not covered above.

III. **Total Population Potentially Affected:** Enter the total number of people potentially affected by the existence of hazardous, or potentially hazardous, conditions at the site. Do not sum the numbers shown for each condition.

IV. **Comments:** Other information relevant to observed, potential, or alleged hazards may be entered here.

- V. **Sources of Information:** List the sources used to obtain information for this form. Sources cited may include: sample analysis, reports, inspections, official records, or other documentation. Sources cited provide the basis for information entered on the form and may be used to obtain further information about the site.

#### Part 4 Permit and Descriptive Information

##### \*I. Identification: Refer to Part 1-1

##### II. Permit Information

- II-01 **Type of Permit Issued:** Check the appropriate box(es) to indicate the types of permits issued to the site. If state, local, or other types of environmental permits have been issued, specify the type.
- II-02 **Permit Number:** Enter the permit number for each issued permit.
- II-03 **Date Issued:** Enter the date each permit was issued.
- II-04 **Expiration Date:** Enter the date each permit expires or expired.
- II-05 **Comments:** Enter any information which further explains the types of permits issued or status of the permits.

##### III. Site Description

- \*III-01 **Storage/Disposal:** Check the appropriate box(es) to indicate the types of storage/disposal facilities found at the site. If Other is checked, specify the type of facility.
- \*III-02 **Amount:** Enter the gross amount of waste associated with each type of storage/disposal facility. Amounts may be measured in: metric tons, tons, cubic meters, cubic yards, drums, acres, acre feet, liters, or gallons.
- \*III-03 **Unit of Measure:** Enter the appropriate unit of measure for each entry. Units of measure are MT (metric tons), TN (tons), CM (cubic meters), CY (cubic yards), DR (drums), AC (acres), AF (acre feet), LT (liters), or GA (gallons).
- \*III-04 **Treatment:** If waste is treated at the site, check the appropriate box(es) to indicate treatment methods used. If Other is checked, specify treatment method.
- III-05 **Other:** If there are buildings on site, check this box.
- \*III-06 **Area of Site:** Enter total area of site in acres.
- III-07 **Comments:** Enter any other pertinent information.

- IV. **Containment:** Containment is a measure of the natural or artificial means taken to minimize or preclude health hazards and to minimize or prevent contamination of the environment from waste at the site.

- \*IV-01 **Containment of Wastes:** Check the appropriate box to indicate the condition of containment measures at the site. When choosing the appropriate box, consider the potential for environmental contamination, i.e., the worst case for containment in conjunction with the most hazardous substances.

- IV-02 **Description of Drums, Diking, Liners, Barriers:** Provide a narrative description of the condition of containment measures at the site and waste ade-

quately contained, drums rusting and leaking, diking collapsing, liners leaking and contaminants leaching into soil and groundwater.

- V. **Accessibility:** Accessibility is an indicator of the potential for direct contact with hazardous substances.

- \*V-01 **Waste Easily Accessible:** If there are no real barriers preventing human access to hazardous waste, check Yes, otherwise check No.

- V-02 **Comments:** Additional information about accessibility to hazardous waste may be provided.

- VI. **Sources of Information:** List the sources used to obtain information for this form. Sources cited may include: sample analysis, reports, inspections, official records, or other documentation. Sources cited provide the basis for information entered on the form and may be used to obtain further information about the site.

#### Part 5 Water, Demographic, and Environmental Data

##### \*I. Identification: Refer to Part 1-1.

##### II. Drinking Water Supply

- II-01 **Type of Drinking Water Supply:** Check the appropriate box(es) to indicate the types and sources of drinking water within the vicinity of the site. Community refers to municipal sources. Non-community refers to private sources, e.g., private wells.

- II-02 **Status:** Check the appropriate box(es) to indicate whether the water supply is endangered or affected by contaminants from the site. Check the appropriate box to indicate if the water supply is being monitored for possible contamination.

- II-03 **Distance to Site:** Enter the distance in miles to the nearest tenth, hundredth, or thousandth (as needed to indicate the precision required) from the site to the nearest drinking water source.

##### III. Groundwater

- III-01 **Groundwater Use in Vicinity:** Check the appropriate box to indicate groundwater use in the vicinity of the site. The concern is to indicate the seriousness of groundwater contamination from waste at the site. Only Source for Drinking indicates that current water sources are limited to wells in the vicinity of the site. Drinking, Commercial, Industrial, Irrigation indicates that groundwater is used for drinking, but that other limited drinking sources are available and that no other sources for these additional uses are available. Commercial, Industrial, Irrigation indicates that groundwater is used for these purposes, but that limited other sources of water are available. Not used, Unuseable indicates that groundwater use in the area is not critical.

- III-02 **Population Served by Groundwater:** Enter the number of people served by groundwater in the vicinity of the site. Population for the purposes of the Site Inspection Report includes residents and daytime workers and students but excludes transients in the neighborhood or on local highways and roads. When estimating population from aerial photographs or other sources, the conversion factor is 3.8 persons for

III-03 Distance to Nearest Drinking Water Well: Enter the distance in miles to the nearest tenth, hundredth, or thousandth (as needed to indicate the precision required) from the site to the nearest drinking water well.

III-04 Depth to Groundwater: Enter the depth in feet to groundwater.

III-05 Depth of Groundwater Flow: Enter the cardinal direction of groundwater flow, e.g., NNW.

III-06 Depth to Aquifer of Concern: Enter the depth in feet to the aquifer of concern.

III-07 Potential Yield of Aquifer: Enter the potential yield of the aquifer in gallons per day.

III-08 Sole Source Aquifer: Check the appropriate box to indicate the aquifer of concern is, or is not, a sole source aquifer.

III-09 Description of Wells: Provide a narrative description of wells in the vicinity of the site, including usage, depth, and location relative to population and buildings.

III-10 Recharge Area: Check the appropriate box to indicate the site is located in a recharge area. Comments provide additional information on the recharge area.

III-11 Discharge Area: Check the appropriate box to indicate the site is located in a discharge area. Comments provide additional information on the discharge area.

#### IV. Surface Water

IV-01 Surface Water Use: Check the appropriate box to indicate surface water use in the vicinity of the site. The order of precedence is Reservoir, Recreation, Drinking Water Source; Irrigation, Economically Important Reserves; Commercial/Industrial; Not Currently Used.

IV-02 Affected/Potentially Affected Bodies of Water: Enter the names of bodies of surface water affected, or potentially affected, by contaminants from the site. List the body of surface water nearest the site first. For each body of water check Affected if contaminants have been identified in samples of the water. Enter the shortest distance from the body of water to the site in miles to the nearest tenth, hundredth, or thousandth (as needed to indicate the precision required).

#### V. Demographic and Property Information

V-01 Total Population Within: Enter the total population within one (1) mile, two (2) miles, and three (3) miles of the site. Distances are measured from site boundaries. Population for the purposes of the Site Inspection Report includes residents and daytime workers and students but excludes transients in the neighborhood or on local highways and roads. When estimating population from aerial photographs or other sources, the conversion factor is 3.8 persons for each dwelling unit or 3 persons per acre in rural areas.

V-02 Distance to Nearest Population: Enter in miles to the nearest tenth, hundredth, or thousandth (as needed to indicate the precision required) the dis-

tance from the site boundary to the nearest population (one person minimum).

V-03 Number of Buildings Within Two (2) Miles of Site: Enter the number of buildings within two miles from the boundaries of the site.

V-04 Distance to Nearest Off-Site Building: Enter the distance in miles to the nearest tenth, hundredth, or thousandth (as needed to indicate the precision required) from the site boundary to the nearest off-site building.

V-05 Population in Vicinity of Site: Provide a narrative description of the nature of the population within the vicinity of the site. Examples include rural area, small truck farms, urban industrial area, densely populated urban residential area.

#### VI. Environmental Information

VI-01 Permeability of Unsaturated Zone: Check the appropriate box to indicate the permeability of the earth material above the water table in the vicinity of the site.

VI-02 Permeability of Bedrock: Check the appropriate box to indicate the permeability of the bedrock in the vicinity of the site.

VI-03 Depth to Bedrock: Enter the depth to bedrock in feet.

VI-04 Depth of Contaminated Soil Zone: Enter the depth of the contaminated soil zone in feet.

VI-05 Soil pH: Enter the pH of the soil in the vicinity of the site.

VI-06 Net Precipitation: Enter net precipitation in inches. If net precipitation is not known, subtract the average evaporation figure on the U.S. National Weather Service map showing average annual evaporation in inches from the U.S. Environmental Data Service map showing mean annual precipitation.

VI-07 One Year 24 Hour Rainfall: Enter in inches the figure for one year 24 hour rainfall.

VI-08 Slope: Enter the percentage of site slope, the direction of site slope, and the percentage of the surrounding terrain average slope.

VI-09 Flood Potential: Enter the boundary year for the floodplain in which the site is located. Sites flooded annually are in a 1 (one) year floodplain. Other examples include 10, 20, 50, 100, 500, etc., indicating the probability of flooding within that time period.

VI-10 Site is on Barrier Island, Coastal High Hazard Area, Riverine Floodway: If site is located in one of these areas, check this box.

VI-11 Distance to Wetlands: If applicable, enter the distance in miles to the nearest tenth, hundredth, or thousandth (as needed to indicate the precision required) from the site to the closest wetlands (five acre minimum) for Estuarine and Other types of wetlands.

VI-12 Distance to Critical Habitat: If applicable, enter the distance in miles to the nearest tenth, hundredth, or thousandth (as needed to indicate the precision required) from the site to the nearest critical habitat



of an endangered species. Enter the name(s) of the endangered species.

- VI-13 **Land Use in Vicinity:** Enter the distance in miles to the nearest tenth, hundredth, or thousandth (as needed to indicate the precision required) to the nearest Commercial/Industrial area; Residential Area; National/State Parks, Forests, or Wildlife Reserves; or Agricultural Lands, Prime Ag Land and Ag Land. Prime Ag Land is that crop, pasture, range, or forest land which produces the highest yield in relation to inputs. Ag Land is the remaining agricultural land, frequently considered marginal.

- VI-14 **Description of Site in Relation to Surrounding Topography:** Provide a narrative description of significant or unusual aspects of the surrounding topography in relation to the site. Examples might include: site is in a valley surrounded on all sides by mountains, site is at edge of a river or stream which floods frequently, etc.

- VII. **Sources of Information:** List the sources used to obtain information for this form. Sources cited may include: sample analysis, reports, inspections, official records, or other documentation. Sources cited provide the basis for information entered on the form and may be used to obtain further information about the site.

#### Part 6 Sample and Field Information

- \*I. **Identification:** Refer to Part 1-I.

#### II. Samples Taken

- II-01 **Number of Samples Taken:** Next to each sample type enter the number of samples of that type taken.
- II-02 **Samples Sent To:** Enter the name of the laboratory or other facility where the samples were sent for analysis.
- II-03 **Estimated Date Results Available:** Enter the estimated date the results are expected to be available.

#### III. Field Measurements Taken

- III-01 **Type:** Enter the type, e.g., radioactivity, explosivity, organic vapor or gas detection and analysis, reagent type gas detection, of each field measurement taken.
- III-02 **Comments:** Describe results of field measurements, whether they were taken on or off site, and if applicable, the type of disposal facility tested, e.g., drum, surface impoundment, landfill.

#### IV. Photographs and Maps

- IV-01 **Type:** If photographs of the site have been taken, check the appropriate box(es) to indicate the type.
- IV-02 **In Custody Of:** Enter the name of the organization or person who has custody of the photographs.
- IV-03 **Maps:** Check the appropriate box to indicate that maps of the site area have been prepared or obtained.
- IV-04 **Location of Maps:** If site maps are available, indicate their location, e.g., Region 1 Air and Hazardous Materials Division.

- V. **Other Field Data Collected:** Provide a narrative description of any other field data collected.

- VI. **Sources of Information:** List the sources used to obtain information for this form. Sources cited may include: sample analysis, reports, inspections, official records, or other documentation. Sources cited provide the basis for information entered on the form and may be used to obtain further information about the site.

#### Part 7 Owner Information

- \*I. **Identification:** Refer to Part 1-I.

- II. **Current Owner(s) - Parent Company:** Current owner(s) and parent companies, for those owners which are companies partly or wholly owned by another company, provide locator information about responsible parties. Each Part 7 provides space for four (4) current owners and their respective parent companies. If additional space is required, complete another Part 7.

- II-01 **Name:** Enter the legal name of the owner of the site. The owner may be a firm, government agency, association, individual, etc.
- II-02 **D&B Number:** Where available, enter the owner's D&B (Dun and Bradstreet) number. If the current owner is a federal agency, enter the GSA identification code.
- II-03 **Street Address:** Enter the business, mailing, or residential street address of the owner.
- II-04 **SIC Code:** If applicable, enter the owner's primary SIC Code.
- II-05 **City:** Enter the city of the owner's business, mailing, or residential address.
- II-06 **State:** Enter the two character alpha FIPS code for the state of the owner's business, mailing, or residential address.
- II-07 **Zip Code:** Enter the five digit zip code for the owner's business, mailing, or residential address.
- II-08 **Name:** If the owner is a partly or wholly owned subsidiary of another company, enter the legal name of the owner's parent company.
- II-09 **D&B Number:** Enter the parent company's Dun and Bradstreet number.
- II-10 **Street Address:** Enter the business or mailing street address of the parent company.
- II-11 **SIC Code:** If applicable, enter the parent company's primary SIC code.
- II-12 **City:** Enter the city of the parent company's business or mailing address.
- II-13 **State:** Enter the two character alpha FIPS code for the state of the parent company's business or mailing address.
- II-14 **Zip Code:** Enter the five digit zip code for the parent company's business or mailing address.
- III. **Previous Owner(s):** List previous owners in reverse chronological order, i.e., most recent first. If additional space is required, complete another Part 7.
- III-01 **Name:** Enter the legal name of the previous owner. The previous owner may have been a firm, government agency, association, individual, etc.

- III-02 D&B Number: Enter the previous owner's Dun and Bradstreet number if available. If the previous owner was a federal agency, enter the GSA identification code if available.
- III-03 Street Address: Enter the business, mailing, or residential street address of the previous owner.
- III-04 SIC Code: If applicable, enter the primary SIC Code of the previous owner.
- III-05 City: Enter the city of the previous owner's business, mailing, or residential address.
- III-06 State: Enter the two character alpha FIPS code for the state of the previous owner's business, mailing, or residential address.
- III-07 Zip Code: Enter the zip code of the previous owner's business, mailing, or residential address.
- IV. **Realty Owner(s):** Realty owner applies when the owner leased to another entity property which was used for the storage or disposal of hazardous waste. List current or most recent first.
- IV-01 Name: Enter the legal name of the realty owner. The realty owner may be a firm, government agency, association, individual, etc.
- IV-02 D&B Number: Enter the previous owner's Dun and Bradstreet number if available. If the previous owner was a federal agency, enter the GSA identification code if available.
- IV-03 Street Address: Enter the realty owner's business, mailing, or residential street address.
- IV-04 SIC Code: If applicable, enter the realty owner's primary SIC Code.
- IV-05 City: Enter the city of the realty owner's business, mailing, or residential address.
- IV-06 State: Enter the two character alpha FIPS code for the state of the realty owner's business, mailing, or residential address.
- IV-07 Zip Code: Enter the zip code of the realty owner's business, mailing, or residential address.
- V. **Sources of Information:** List the sources used to obtain information for this form. Sources cited may include: sample analysis, reports, inspections, official records, or other documentation. Sources cited provide the basis for information entered on the form and may be used to obtain further information about the site.

## Part 8 Operator Information

- I. **Identification:** Refer to Part 1-I.
- II. **Current Operator—Operator's Parent Company:** Information on operators is applicable when the operator is not the owner.
- II-01 Name: Enter the legal name of the operator. The operator may be a firm, government agency, association, individual, etc.
- II-02 D&B Number: Enter the operator's Dun and Bradstreet number if available. If the operator is a federal agency, enter the GSA identification code if available.

- II-03 Street Address: Enter the operator's business, mailing, or residential street address.
- II-04 SIC Code: If applicable, enter the operator's primary SIC Code.
- II-05 City: Enter the city of the operator's business, mailing, or residential address.
- II-06 State: Enter the two character alpha FIPS code for the state of the operator's business, mailing, or residential address.
- II-07 Zip Code: Enter the zip code of the operator's business, mailing, or residential address.
- II-08 Years of Operation: Enter the beginning and ending years (or beginning only if operations are on-going), e.g., 1932/1948, of operation at the site.
- II-09 Name of Owner: Enter the name of the owner for the period cited for this operator.
- II-10 Name: If applicable, enter the legal name of the operator's parent company.
- II-11 D&B Number: Enter the operator's parent company Dun and Bradstreet number if available.
- II-12 Street Address: Enter the operator's parent company business, mailing, or residential street address.
- II-13 SIC Code: If applicable, enter the operator's parent company primary SIC Code.
- II-14 City: Enter the city of the operator's parent company business, mailing, or residential address.
- II-15 State: Enter the two character alpha FIPS code for the state of the operator's parent company business, mailing, or residential address.
- II-16 Zip Code: Enter the zip code of the operator's parent company business, mailing, or residential address.
- III. **Previous Operator(s)—Previous Operators' Parent Companies**
- III-01 Name: Enter the legal name of the previous operator. The previous operator may be a firm, government agency, association, individual, etc.
- III-02 D&B Number: Enter the previous operator's Dun and Bradstreet number if available. If the previous operator was a federal agency, enter the GSA identification code if available.
- III-03 Street Address: Enter the previous operator's business, mailing, or residential street address.
- III-04 SIC Code: If applicable, enter the previous operator's primary SIC Code.
- III-05 City: Enter the city of the previous operator's business, mailing, or residential address.
- III-06 State: Enter the two character alpha FIPS code for the state of the previous operator's business, mailing, or residential address.
- III-07 Zip Code: Enter the zip code of the previous operator's business, mailing, or residential address.
- III-08 Years of Operation: Enter the beginning and ending years of operation for this operator at the site.
- III-09 Name of Owner: Enter the name of the owner for the period cited for this operator.

- III-10 Name: If applicable, enter the legal name of the previous operator's parent company.
- III-11 D&B Number: Enter the previous operator's parent company Dun and Bradstreet number if available.
- III-12 Street Address: Enter the previous operator's parent company business, mailing, or residential street address.
- III-13 SIC Code: If applicable, enter the previous operator's parent company primary SIC Code.
- III-14 City: Enter the city of the previous operator's parent company business, mailing, or residential address.
- III-15 State: Enter the two character alpha FIPS code for the state of the previous operator's parent company business, mailing, or residential address.
- III-16 Zip Code: Enter the zip code of the previous operator's parent company business, mailing, or residential address.
- IV. Sources of Information: List the sources used to obtain information for this form. Sources cited may include: sample analysis, reports, inspections, official records, or other documentation. Sources cited provide the basis for information entered on the form and may be used to obtain further information about the site.

#### Part 9 Generator/Transporter Information

- \*I. Identification: Refer to Part 1-1.
- II. On-Site Generator: A company or agency, located within the contiguous area of the site and generating waste disposed on the site, is entered here.
- II-01 Name: If there is an on-site generator, enter the legal name of the on-site generator. The on-site generator may be a firm or government agency.
- II-02 D&B Number: Where available, enter the on-site generator's D&B (Dun and Bradstreet) number. If the on-site generator is a federal agency, enter the GSA identification code.
- II-03 Street Address: Enter the business or mailing street address of the on-site generator.
- II-04 SIC Code: If applicable, enter the on-site generator's primary SIC Code.
- II-05 City: Enter the city of the on-site generator's business or mailing address.
- II-06 State: Enter the two character alpha FIPS code for the state of the on-site generator's business or mailing address.
- II-07 Zip Code: Enter the five digit zip code for the on-site generator's business or mailing address.
- III. Off-Site Generator(s): Those companies or agencies off-site who have generated waste which has been disposed at the site are listed here.
- III-01 Name: Enter the legal name of the off-site generator. The off-site generator may be a firm or government agency.
- III-02 D&B Number: Where available, enter the off-site generator's D&B (Dun and Bradstreet) number. If the off-site generator is a federal agency, enter the

- III-03 Street Address: Enter the business or mailing street address of the off-site generator.
- III-04 SIC Code: If applicable, enter the off-site generator's primary SIC Code.
- III-05 City: Enter the city of the off-site generator's business or mailing address.
- III-06 State: Enter the two character alpha FIPS code for the state of the off-site generator's business or mailing address.
- III-07 Zip Code: Enter the five digit zip code for the off-site generator's business or mailing address.

#### IV. Transporter(s): Those carriers who are known to have transported waste to the site are listed here.

- IV-01 Name: Enter the legal name of the transporter. The transporter may be a firm, government agency, association, individual, etc.
- IV-02 D&B Number: Where available, enter the transporter's D&B (Dun and Bradstreet) number. If the transporter is a federal agency, enter the GSA identification code.
- IV-03 Street Address: Enter the business, mailing, or residential street address of the transporter.
- IV-04 SIC Code: If applicable, enter the transporter's primary SIC Code.
- IV-05 City: Enter the city of the transporter's business, mailing, or residential address.
- IV-06 State: Enter the two character alpha FIPS code for the state of the transporter's business, mailing, or residential address.
- IV-07 Zip Code: Enter the five digit zip code for the transporter's business, mailing, or residential address.

#### V. Sources of Information: List the sources used to obtain information for this form. Sources cited may include: sample analysis, reports, inspections, official records, or other documentation. Sources cited provide the basis for information entered on the form and may be used to obtain further information about the site.

#### Part 10 Past Response Activities

- \*I. Identification: Refer to Part 1-1.
- II. Past Response Activities
- II-01 Past Response Activities: Check the appropriate box(es) to indicate response activities initiated prior to the passage of CERCLA, December, 1980.
- II-02 Date: Enter the start date (or approximate date) of the activity.
- II-03 Agency: Enter the name of the Agency responsible for the activity.
- II-04 Description: Provide a brief narrative description of the activity.
- III. Sources of Information: List the sources used to obtain information for this form. Sources cited may include: sample analysis, reports, inspections, official records, or other documentation. Sources cited provide the basis for information entered on the form and may be used to obtain further information about the site.

## SITE INSPECTION REPORT

### Part 11 Enforcement Information

I. Identification: Refer to Part 1—I.

### II. Enforcement Information

II-01 Past Regulatory/Enforcement Action: Check the appropriate box to indicate past regulatory or enforcement action at the federal, state, or local level related to this site.

II-02 Description of Federal, State, Local Regulatory or Enforcement Action. Provide a narrative description

of regulatory or enforcement action to date. Do not include any enforcement action contemplated in the process of development.

### III.

Sources of Information: List the sources used to obtain information for this form. Sources cited may include: sample analysis, reports, inspections, official records, or other documentation. Sources cited provide the basis for information entered on the form and may be used to obtain further information about the site.

## APPENDIX

### I. FEEDSTOCKS

CAS Number	Chemical Name	CAS Number	Chemical Name	CAS Number	Chemical Name
1 7864-41-7	Ammonia	14. 1317-38-0	Cupric Oxide	27. 7778-50-9	Potassium Dichromate
2. 7440-36-0	Antimony	15. 7758-98-7	Cupric Sulfate	28. 1310-58-3	Potassium Hydroxide
3. 1309-64-4	Antimony Trioxide	16. 1317-39-1	Cuprous Oxide	29. 115-07-1	Propylene
4. 7440-38-2	Arsenic	17. 74-85-1	Ethylene	30. 10588-01-9	Sodium Dichromate
5. 1327-53-3	Arsenic Trioxide	18. 7647-01-0	Hydrochloric Acid	31. 1310-73-2	Sodium Hydroxide
6. 21109-95-5	Barium Sulfide	19. 7084-39-3	Hydrogen Fluoride	32. 7646-78-8	Stannic Chloride
7. 7726-95-6	Bromine	20. 1325-25-7	Lead Oxide	33. 7772-99-8	Stannous Chloride
8. 106-98-0	Butadiene	21. 7439-97-6	Mercury	34. 7664-93-9	Sulfuric Acid
9. 7440-43-9	Cadmium	22. 74-82-8	Methane	35. 108-88-3	Toluene
10. 7782-50-5	Chlorine	23. 91-20-3	Napthalene	36. 1330-20-7	Xylene
11. 12737-27-8	Chromite	24. 7440-02-0	Nickel	37. 7646-85-7	Zinc Chloride
12. 7440-47-3	Chromium	25. 7697-37-2	Nitric Acid	38. 7733-02-0	Zinc Sulfate
13. 7440-48-4	Cobalt	26. 7723-14-0	Phosphorus		

### II. HAZARDOUS SUBSTANCES

CAS Number	Chemical Name	CAS Number	Chemical Name	CAS Number	Chemical Name
1. 75-07-0	Acetaldehyde	47. 1303-33-9	Arsenic Trisulfide	92. 142-71-2	Cupric Acetate
2. 64-19-7	Acetic Acid	48. 542-62-1	Barium Cyanide	93. 12002-03-8	Cupric Acetoarsenite
3. 108-24-7	Acetic Anhydride	49. 71-43-2	Benzene	94. 7447-39-4	Cupric Chloride
4. 75-86-5	Acetone Cyanohydrin	50. 65-85-0	Benzoic Acid	95. 3251-23-8	Cupric Nitrate
5. 508-96-7	Acetyl Bromide	51. 100-47-0	Benzonitrile	96. 5893-66-3	Cupric Oxalate
6. 75-36-5	Acetyl Chloride	52. 98-88-4	Benzoyl Chloride	97. 7758-98-7	Cupric Sulfate
7. 107-02-8	Acrolein	53. 100-44-7	Benzyl Chloride	98. 10380-29-7	Cupric Sulfate Ammoniated
8. 107-13-1	Acrylonitrile	54. 7440-41-7	Beryllium	99. 815-82-7	Cupric Tartrate
9. 124-04-9	Adipic Acid	55. 7787-47-5	Beryllium Chloride	100. 506-77-4	Cyanogen Chloride
10. 309-00-2	Aldrin	56. 7787-49-7	Beryllium Fluoride	101. 110-82-7	Cyclohexane
11. 10043-01-3	Aluminum Sulfate	57. 13597-99-4	Beryllium Nitrate	102. 94-75-7	2,4-D Acid
12. 107-18-6	Allyl Alcohol	58. 123-86-4	Butyl Acetate	103. 94-11-1	2,4-D Esters
13. 107-05-1	Allyl Chloride	59. 84-74-2	n-Butyl Phthalate	104. 50-29-3	DDT
14. 7864-41-7	Ammonia	60. 109-73-9	Butylamine	105. 333-41-5	Diazinon
15. 631-61-8	Ammonium Acetate	61. 107-92-6	Butyric Acid	106. 1918-00-9	Dicamba
16. 1863-63-4	Ammonium Benzoate	62. 543-90-8	Cadmium Acetate	107. 1194-65-6	Dichlobenil
17. 1086-33-7	Ammonium Bicarbonate	63. 7789-42-6	Cadmium Bromide	108. 117-80-6	Dichlorone
18. 7789-09-5	Ammonium Dichromate	64. 10108-64-2	Cadmium Chloride	109. 25321-22-6	Dichlorobenzene (all isomers)
19. 1341-48-7	Ammonium Difluoride	65. 7778-44-1	Cadmium Arsenate	110. 266-38-19-7	Dichloropropane (all isomers)
20. 10192-30-0	Ammonium Bisulfite	66. 52740-16-6	Calcium Arsenite	111. 26952-23-8	Dichloropropene (all isomers)
21. 1111-78-0	Ammonium Carbamate	67. 75-20-7	Calcium Carbide	112. 8003-19-8	Dichloropropene-Dichloropropane Mixture
22. 12125-02-9	Ammonium Chloride	68. 13765-19-0	Calcium Chromate		
23. 7788-98-9	Ammonium Chromate	69. 582-01-8	Calcium Cyanide	113. 75-89-0	2,2-Dichloropropionic Acid
24. 3012-85-5	Ammonium Citrate, Dibasic	70. 26264-06-2	Calcium Dodecylbenzene Sulfonate	114. 62-73-7	Dichlorvos
25. 13826-83-0	Ammonium Fluoborate			115. 60-57-1	Dieldrin
26. 12125-01-8	Ammonium Fluoride	71. 7778-54-3	Calcium Hypochlorite	116. 109-89-7	Diethylamine
27. 1336-21-6	Ammonium Hydroxide	72. 133-06-2	Caplan	117. 124-40-3	Dimethylamine
28. 6009-73-7	Ammonium Oxalate	73. 63-25-2	Carbaryl	118. 25154-54-5	Dinitrobenzene (all isomers)
29. 18919-19-0	Ammonium Silicofluoride	74. 1563-66-2	Carbofuran	119. 51-28-5	Dinitrophenol
30. 7773-06-0	Ammonium Sulfamate	75. 75-15-0	Carbon Disulfide	120. 25321-14-6	Dinitrotoluene (all isomers)
31. 12135-76-1	Ammonium Sulfide	76. 56-23-5	Carbon Tetrachloride	121. 85-00-7	Diquat
32. 10196-04-0	Ammonium Sulfite	77. 57-74-9	Chlordane	122. 298-04-4	Disulfoton
33. 14307-43-8	Ammonium Tartrate	78. 7782-50-5	Chlorine	123. 330-54-1	Diuron
34. 1762-85-4	Ammonium Thiocyanate	79. 108-90-7	Chlorobenzene	124. 27176-87-0	Dodecylbenzenesulfonic Acid
35. 7783-18-8	Ammonium Thiosulfate	80. 67-66-3	Chloroform	125. 115-29-7	Endosulfan (all isomers)
36. 628-63-7	Amyl Acetate	81. 7790-94-5	Chlorosulfonic Acid	126. 72-20-8	Endrin and Metabolites
37. 62-53-3	Aniline	82. 2921-88-2	Chlorpyrifos	127. 106-89-8	Ep-chlorohydrin
38. 7647-18-9	Antimony Pentachloride	83. 1066-30-4	Chromic Acetate	128. 563-12-2	Ethion
39. 7789-61-9	Antimony Tribromide	84. 7738-94-5	Chromic Acid	129. 100-41-4	Ethyl Benzene
40. 10025-91-9	Antimony Trichloride	85. 10101-53-8	Chromic Sulfate	130. 107-15-3	Ethylenediamine
41. 7783-56-4	Antimony Trifluoride	86. 10049-05-5	Chromous Chloride	131. 106-93-4	Ethylene Dibromide
42. 1309-64-4	Antimony Trioxide	87. 544-18-3	Cobaltous Formate	132. 107-06-2	Ethylene Dichloride
43. 1303-32-8	Arsenic Disulfide	88. 14017-41-5	Cobaltous Sulfamate	133. 60-00-4	EDTA
44. 1303-28-2	Arsenic Pentoxide	89. 56-72-4	Coumaphos	134. 1185-57-5	Ferric Ammonium Citrate
45. 7784-34-1	Arsenic Trichloride	90. 1319-77-3	Cresol	135. 2944-67-4	Ferric Ammonium Oxalate
46. 1327-53-3	Arsenic Trioxide	91. 4170-30-3	Crotonaldehyde	136. 7705-08-0	Ferric Chloride

## II. HAZARDOUS SUBSTANCES

CAS Number	Chemical Name	CAS Number	Chemical Name	CAS Number	Chemical Name
137. 7783-50-8	Ferric Fluoride	192. 74-89-5	Monomethylamine	249. 7632-00-0	Sodium Nitrate
138. 10421-48-4	Ferric Nitrate	193. 300-76-5	Naled	250. 7558-79-4	Sodium Phosphate, Dibasic
139. 10028-22-5	Ferric Sulfate	194. 91-20-3	Naphthalene	251. 7601-54-9	Sodium Phosphate, Tribasic
140. 10045-89-3	Ferrous Ammonium Sulfate	195. 1338-24-5	Naphthenic Acid	252. 10102-18-8	Sodium Selenite
141. 7758-94-3	Ferrous Chloride	196. 7440-02-0	Nickel	253. 7789-06-2	Strontium Chromate
142. 7720-78-7	Ferrous Sulfate	197. 15699-18-0	Nickel Ammonium Sulfate	254. 57-24-9	Strychnine and Salts
143. 206-44-0	Fluoranthene	198. 37211-05-5	Nickel Chloride	255. 100-420-5	Styrene
144. 50-00-0	Formaldehyde	199. 12054-48-7	Nickel Hydroxide	256. 12771-08-3	Sulfur Monochloride
145. 64-18-8	Formic Acid	200. 14216-75-2	Nickel Nitrate	257. 7664-93-9	Sulfuric Acid
146. 110-17-8	Fumaric Acid	201. 7786-81-4	Nickel Sulfate	258. 93-76-5	2,4,5-T Acid
147. 98-01-1	Furfural	202. 7697-37-2	Nitric Acid	259. 2008-46-0	2,4,5-T Amines
148. 86-50-0	Guthion	203. 98-95-3	Nitrobenzene	260. 93-79-8	2,4,5-T Esters
149. 76-44-8	Heptachlor	204. 10102-44-0	Nitrogen Dioxide	261. 13560-99-1	2,4,5-T Salts
150. 118-74-1	Hexachlorobenzene	205. 25154-55-6	Nitrophenol (all isomers)	262. 93-72-1	2,4,5-TP Acid
151. 87-58-3	Hexachlorobutadiene	206. 1321-12-6	Nitrotoouene	263. 32534-95-5	2,4,5-TP Acid Esters
152. 67-72-1	Hexachloroethane	207. 30525-89-4	Paraformaldehyde	264. 72-54-8	TDE
153. 70-30-4	Hexachlorophene	208. 56-38-2	Parathion	265. 95-94-3	Tetrachlorobenzene
154. 77-47-4	Hexachlorocyclopentadiene	209. 608-93-5	Pentachlorobenzene	266. 127-18-4	Tetrachloroethane
155. 7647-01-0	Hydrochloric Acid (Hydrogen Chloride)	210. 87-86-5	Pentachlorophenol	267. 78-00-2	Tetraethyl Lead
156. 7664-39-3	Hydrofluoric Acid (Hydrogen Fluoride)	211. 85-01-8	Phenanthrene	268. 107-49-3	Tetraethyl Pyrophosphate
157. 74-90-8	Hydrogen Cyanide	212. 108-95-2	Phenol	269. 7446-18-6	Thallium (I) Sulfate
158. 7783-06-4	Hydrogen Sulfide	213. 75-44-5	Phosgene	270. 108-88-3	Toluene
159. 78-79-5	Isoprene	214. 7664-38-2	Phosphoric Acid	271. 8001-35-2	Toxaphene
160. 42504-46-1	Isopropanolamine Dodecylbenzenesulfonate	215. 7723-14-0	Phosphorus	272. 12002-48-1	Trichlorobenzene (all isomers)
161. 115-32-2	Keithane	216. 10025-87-3	Phosphorus Oxichloride	273. 52-68-6	Trichlorfon
162. 143-50-0	Kepone	217. 1314-80-3	Phosphorus Pentasulfide	274. 25323-89-1	Trichloroethane (all isomers)
163. 301-04-2	Lead Acetate	218. 7719-12-2	Phosphorus Trichloride	275. 79-01-6	Trichloroethylene
164. 3687-31-8	Lead Arsenate	219. 7784-41-0	Potassium Arsenate	276. 25167-82-2	Trichlorophenol (all isomers)
165. 7758-95-4	Lead Chloride	220. 10124-50-2	Potassium Arsenite	277. 27323-41-7	Triethanolamine Dodecylbenzenesulfonate
166. 13814-96-5	Lead Fluoborate	221. 7778-50-9	Potassium Bichromate	278. 121-44-8	Triethylamine
167. 7783-46-2	Lead Fluoride	222. 7789-00-6	Potassium Chromate	279. 75-50-3	Trimethylamine
168. 10101-63-0	Lead Iodide	223. 7722-64-7	Potassium Permanganate	280. 541-09-3	Uranyl Acetate
169. 18256-98-9	Lead Nitrate	224. 2312-35-8	Propargite	281. 10102-06-4	Uranyl Nitrate
170. 7428-48-0	Lead Stearate	225. 79-09-4	Propionic Acid	282. 1314-62-1	Vanadium Pentoxide
171. 15739-80-7	Lead Sulfate	226. 123-62-8	Propionic Anhydride	283. 27774-13-6	Vanadyl Sulfate
172. 1314-87-0	Lead Sulfide	227. 1336-36-3	Polychlorinated Biphenyls	284. 108-05-4	Vinyl Acetate
173. 592-87-0	Lead Thiocyanate	228. 151-50-8	Potassium Cyanide	285. 75-35-4	Vinylidene Chloride
174. 58-89-9	Lindane	229. 1310-58-3	Potassium Hydroxide	286. 1300-71-6	Xylenol
175. 14307-35-8	Lithium Chromate	230. 75-56-9	Propylene Oxide	287. 557-34-6	Zinc Acetate
176. 121-75-5	Malthion	231. 121-29-9	Pyrethrins	288. 52628-25-8	Zinc Ammonium Chloride
177. 110-16-7	Maleic Acid	232. 91-22-5	Quinoline	289. 1332-07-6	Zinc Borate
178. 108-31-6	Maleic Anhydride	233. 108-46-3	Resorcinol	290. 7699-45-8	Zinc Bromide
179. 2032-65-7	Mercaptodimethur	234. 7446-08-4	Selenium Oxide	291. 3486-35-9	Zinc Carbonate
180. 592-04-1	Mercuric Cyanide	235. 7761-88-8	Silver Nitrate	292. 7646-85-7	Zinc Chloride
181. 10045-94-0	Mercuric Nitrate	236. 7631-39-2	Sodium Arsenate	293. 557-21-1	Zinc Cyanide
182. 7783-35-9	Mercuric Sulfate	237. 7784-46-5	Sodium Arsenite	294. 7783-49-3	Zinc Fluoride
183. 592-85-8	Mercuric Thiocyanate	238. 10588-01-9	Sodium Bichromate	295. 557-41-5	Zinc Formate
184. 10415-75-5	Mercurous Nitrate	239. 1333-83-1	Sodium Bifluoride	296. 7779-86-4	Zinc Hydrosulfite
185. 72-43-5	Methoxychlor	240. 7631-90-5	Sodium Bisulfite	297. 7779-88-6	Zinc Nitrate
186. 74-93-1	Methyl Mercaptan	241. 7775-11-3	Sodium Chromate	298. 127-82-2	Zinc Phenolsulfonate
187. 80-62-8	Methyl Methacrylate	242. 143-33-9	Sodium Cyanide	299. 1314-84-7	Zinc Phosphide
188. 298-00-0	Methyl Parathion	243. 25155-30-0	Sodium Dodecylbenzene Sulfonate	300. 16871-71-9	Zinc Silicofluoride
189. 7786-34-7	Mevinphos	244. 7681-49-4	Sodium Fluoride	301. 7733-02-0	Zinc Sulfate
190. 315-18-4	Mexacarbate	245. 16721-80-5	Sodium Hydrosulfide	302. 13746-89-9	Zirconium Nitrate
191. 75-04-7	Monoethylamine	246. 1310-73-2	Sodium Hydroxide	303. 16923-95-8	Zirconium Potassium Fluoride
		247. 7681-52-9	Sodium Hypochlorite	304. 14644-61-2	Zirconium Sulfate
		248. 124-41-4	Sodium Methylate	305. 10026-11-6	Zirconium Tetrachloride

APPENDIX B

Area Well Logs  
For  
WAUKESHA SANITARY LANDFILL

State of Wisconsin  
Department of Natural Resources

SOIL BORING LOG INFORMATION  
FORM 4400-122  
Page 1 of 1



UTILITY NAME Waukesha Sanitary Landfill

DRILLED BY Chuck Bartle

WELL NUMBER WI UNIQUE WELL NO. (ASSIGNED BY DNR)

MW-90-1

1/4 CF 1/4 SECTION

non responsive

BOREHOLE DIAMETER

8.0 INCHES

WATER LEVEL

9.0 FT

SURFACE ELEVATION

854.5'

GRID LOCATION (IF APPLICABLE)

FT W OR S FEET W OR W

COUNTY Waukesha COUNTY CODE

CIVIL TOWN

Sample No	Rec.	D E P T H F T H	SOIL/ROCK DESCRIPTION	D I S T R I B U T I O N C L A S S I F I C A T I O N	G R A D E H E I G H T F E E T	H M U	SOIL PROPERTIES					BLOW COUNT
							qu (ga) (tsf)	W	LL	PL	P200	
		-0	Black TOPSOIL, some crushed Rock, trace of Roots									
		-1										
1	6	-2				0.2						17
		-3	Brown fine to coarse SAND, some fine Gravel, trace									
2	7	-4	of crushed glass, FILL			0.2						5
		-5										
3	10	-6	Brown and black, trace of gravel and glass			0.2						15
		-7										
3		-8	Black, trace of slag with native cooper			0.2						2
		-9										
5	3	-10				0.2						1
		-11	Gray PEAT, some Clay, trace of Gravel (PT)									
6	24	-12				0.2						9
		-13	Brown fine GRAVEL, some Sand (GP)									
7		-14				0.2						26
		-15	Tan SILT, some sand and Gravel (ML), (SP)									
24		-16				0.2						31
		-17										
9	24	-18				0.2						81
		-19	End of boring MW-90-1 @ 18.0'									
		-20	Install well @ 17.6'									
		-21										
		-22										
		-23										
		-24										
		-25										
		-26										
		-27										
		-28										
		-29										
		-30										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Firm

Exploration Technology Inc.

This form is authorized by Chapters 144, 147 and 162, WI Stats. Completion of the report is mandatory.  
Penalties: Forfeited not less than \$10 not more than \$5,000 for each violation, fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation  
Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06 WI stats.

EXPLORATION  
TECHNOLOGY  
INC.





FACILITY NAME Waukesha Sanitary Landfill

DRILLED BY Chuck Bartle

WELL NUMBER WI UNIQUE WELL NO. (ASSIGNED BY DNR)

MW-90-2

1/4 OF 1/4 SECTION

Carlton Place & Estberg Avenue

BOREHOLE DIAMETER

8.0 INCHES

WATER LEVEL

37.6 FT

SURFACE ELEVATION

850.3'

GRID LOCATION (IF APPLICABLE)

FT W OR S FEET W OR W

COUNTY Waukesha COUNTY CODE

CIVIL TOWN

Sample		D E P T H	SOIL/ROCK DESCRIPTION	D I U R R W I S D A L E A S D Q P O H N U L R S H G A I M C	SOIL PROPERTIES	BLOW COUNT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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1	9	-0	Brown TOPSOIL, some Clay, trace of coarse Gravel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

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EXPLORATION  
TECHNOLOGY  
INC.



Sample No	D E P T H R E C D	SOIL/ROCK DESCRIPTION	D I S T R I B U T I O N	G R A V E L	H M U R T O N	SOIL PROPERTIES					BLOW COUNT
						qu (ga) (tsf)	W	LL	PL	P200	
16	24	-31 Tan fine SAND, trace of coarse Gravel (SW)				0.2					34
		-32									
		-33									
17	24	-34				0.2					43
		-35									
18	24	-36				0.2					52
		-37 Brown fine GRAVEL (GW)									
19	24	-38				0.2					27
		-39 Brown fine GRAVEL, little Sand (GP)									
20	24	-40				0.2					25
		-41									
21	24	-42 Gray fine SAND (SW)				0.2					23
		-43									
22	24	-44				0.2					45
		-45									
		-46 End of boring MW-90-2 @ 45.0'									
		-47 Install well @ 44.8'									
		-48									
		-49									
		-50									
		-51									
		-52									
		-53									
		-54									
		-55									
		-56									
		-57									
		-58									
		-59									
		-60									
		-61									
		-62									
		-63									
		-64									

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FACILITY NAME Waukesha Sanitary Landfill

DRILLED BY Chuck Bartle

WELL NUMBER WI UNIQUE WELL (ASSIGNED BY DNR)

WM-90-3

1/4 OF 1/4 SECTION

BOREHOLE DIAMETER

8.0 INCHES

WATER LEVEL

34.0' FT

SURFACE ELEVATION

849.1'

GRID LOCATION (IF APPLICABLE)

FT N OR S FEET W OR E

non responsive

COUNTY Waukesha COUNTY CODE

CIVIL TOWN

Sample No	Rec.	D E P T H	SOIL/ROCK DESCRIPTION	D I S T R I B U T I O N	G R A V E L	H M U	SOIL PROPERTIES				BLOW COUNT
							qu (ga) (tsf)	W	LL	PL	P200

		-0	Brown TOPSOIL, (OL)									
		-1										
1	24	-2	Brown SAND and GRAVEL (GW)			0.2						18
		-3										
2	24	-4				0.2						50
		-5										
3	18	-6				0.2						53
		-7										
4	24	-8				0.2						90
		-9										
5	24	-10				0.2						38
		-11										
6	12	-12				0.2						70
		-13										
7	8	-14				0.2						80
		-15										
8	12	-16				0.2						70
		-17										
9	24	-18				0.2						60
		-19										
10	24	-20				0.2						85
		-21										
11	7	-22				0.2						100
		-23										
12	9	-24				0.2						100
		-25										
13	24	-26				0.2						54
		-27	Tan fine SAND, trace of fine Gravel, (SW)									
14	24	-28				0.2						35
		-29										
15	24	-30				0.2						55

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Signature

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EXPLORATION  
TECHNOLOGY  
INC.

3

Sample No	D E P T H Rec.	SOIL/ROCK DESCRIPTION	D I S C R I M I N A T O R Y	G R A D E	H M U	SOIL PROPERTIES					BLOW COUNT
						qu (ga) (tsf)	W	LL	PL	P200	
16	24	-31 Tan fine SAND, trace of coarse Gravel (SW)				0.2					32
17	24	-32									
		-33									
17	24	-34 Brown fine GRAVEL, some Sand, (GP)				0.2					26
		-35									
18	24	-36 Brown fine SAND, (SW)				0.2					27
		-37									
		-38									
		-39									
		-40									
		-41									
19	18	-42 Gray fine to medium SAND, some fine Gravel (SP)				0.2					58
		-43									
		-44									
		-45									
		-46									
		-47									
		-48									
		-49									
		-50 End of boring MW-90-3 @ 49.0' (auger refusal)									
		-51 Install well @ 47.4'									
		-52 HMu Background = 0.2 ppm									
		-53									
		-54									
		-55									
		-56									
		-57									
		-58									
		-59									
		-60									
		-61									
		-62									
		-63									
		-64									

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State of Wisconsin  
Department of Natural Resources

SOIL BORING LOG INFORMATION  
FORM 4400-122  
Page 1 of 1



FACILITY NAME **Waukesha Sanitary Landfill**  
DRILLED BY **Greg Hanson**  
WELL NUMBER **WI UNIQUE WELL NO. (ASSIGNED BY DNR)**  
**MW-90-4**

BOREHOLE DIAMETER **8.0 INCHES** WATER LEVEL **16.9 FT** SURFACE ELEVATION **850.3'**  
GRID LOCATION (IF APPLICABLE)  
FT W OR S FEET W OR W

1/4 OF 1/4 SECTION

**non responsive**

COUNTY **Waukesha** COUNTY CODE

CIVIL TOWN

Sample	D E P T H No Rec.	SOIL/ROCK DESCRIPTION	D W E L L L A R A M	I U S C R S I C	G R A D P O H I C	SOIL PROPERTIES					BLOW COUNT
						qu (ga) (tsf)	W	LL	PL	P200	

1	8	-0	Brown Silty TOPSOIL								
		-1									
		-2	Brown Silt, little Gravel FILL								
		-3									
		-4									
		-5									
		-6									
		-7									
		-8	Brown Sand and Crushed Rock FILL								
		-9				0.2					36
2	10	-10									
		-11	Gray with brown mottlings Silt & Clay, FILL								
		-12									
		-13									
		-14	Black and gray Wood, FILL								
		-15									
		-16	Gray crushed Sandstone FILL			0.2					43
		-17									
		-18									
		-19									
3	6	-20	Black PEAT, strong product odor sheen								
		-21				29					32
		-22	End of boring MW-90-4 @ 20.5'								
		-23	Install well @ 19.0'								
		-24	HMW background = 0.2 ppm								
		-25									
		-26									
		-27									
		-28									
		-29									
		-30									

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**EXPLORATION  
TECHNOLOGY  
INC.**

non responsive

CONSTRUCTOR'S REPORT

WISCONSIN STATE BOARD OF HEALTH

Wd 6

NAME Waukegan CHECK ONE ☐ Town ☐ Village ☒ City

non responsive

DRILLER AT TIME OF DRILLING D & D Construction Co.

DRILLER'S COMPLETE MAIL ADDRESS non responsive

Distance in feet from well to nearest:	BUILDING	SANITARY SEWER	FLOOR DRAIN	FOUNDATION DRAIN	WASTE WATER DRAIN
and answer in appropriate block)	44	48	C.I. TILE 54	SEWER CONNECTED INDEPENDENT	C.I. TILE 46
WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN
53	no	no	65	no	no
SILE	ABANDONED WELL	SINK HOLE	no		

POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

It is intended to supply water for: Service Station

9. LITHOLOGY						10. FORMATIONS	
In.	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)	Kind	From (ft.)
7	Surface	20	6	20	198	Clay (Sandy)	Surface
						lime rock	45
							198

8. CASING, LINER, CURBING, AND SCREEN			
In.	Kind and Weight	From (ft.)	To (ft.)
16	19.45 lb. per ft. pipe threads and couplings	Surface	45

7. GROUT OR OTHER SEALING MATERIAL			
Kind	From (ft.)	To (ft.)	
Clay slurry	Surface	20	

MISCELLANEOUS DATA		Well construction completed on 12-12-1967	
test: 5	Hrs. at 22 GPM	Well is terminated 10 inches	<input checked="" type="checkbox"/> above final grade
from surface to normal water level 13 ft.		Well disinfected upon completion	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
to water level when pumping 14 ft.		Well sealed watertight upon completion	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
sample sent to <u>Michigan</u>		laboratory on: 12-20-1967	

opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-pumprooms, access pits, etc., should be given on reverse side.

Signature [Signature] Registered Well Driller 3149 So. 99th, Milwaukee, Wis.

Please do not write in space below

WATER TEST RESULT	GAS - 24 HRS.	GAS - 48 HRS.	CONFIRMED	REMARKS

W. O. #2663

MAR 11 1973

WELL CONSTRUCTOR'S REPORT  
FORM 3300-15

## NOTE

WHITE COPY - DIVISION'S COPY  
GREEN COPY - DRILLER'S COPY  
YELLOW COPY - OWNER'S COPYSTATE OF WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES  
Box 450  
Madison, Wisconsin 53701

6

Waukesha

## CHECK ONE

☐ Town☐ Village☒ City

## NAME

Waukesha

non responsive

## 3. OWNER AT TIME OF DRILLING

non responsive

D If available subdivision name, lot &amp; block no.

## POST OFFICE

Waukesha, Wisconsin 53186

Distance in feet from well to nearest:

(Record answer in appropriate block)

BUILDING	SANITARY SEWER	FLOOR DRAIN	FOUNDATION DRAIN	WASTE WATER DRAIN
C.I.	TILE	C.I.	TILE	C.I.
15	-	-	-	-
			15	-

SEWER CONNECTED	INDEPENDENT	SEWER	WATER	WELL	SINK HOLE
-	-	-	-	-	-

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

(- above indicates NONE)

Well is intended to supply water for:

RESTAURANT

## DI HOLE

Di. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)	Kind	From (ft.)	To (ft.)
8	Surface	66	6	66	150	Sand & Gravel	Surface	42
						Hardpan	42	64

## CASING, LINER, CURBING, AND SCREEN

Di. (in.)	Kind and Weight	From (ft.)	To (ft.)	Kind	From (ft.)	To (ft.)
6	New Std. Steel Black	Surface	66	Lime cone	64	150
	P.E. 18.97 lbs. per foot					

## GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)	Kind	From (ft.)	To (ft.)
Drilled Cuttings and Bentonite	Surface	66			

## 10. TYPE OF DRILLING MACHINE USED

<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Direct Rotary	<input type="checkbox"/> Reverse Rotary
<input checked="" type="checkbox"/> Rotary - air w/ drilling mud	<input type="checkbox"/> Rotary - hammer w/ drilling mud & air	<input type="checkbox"/> Jetting with Air <input type="checkbox"/> Water

Well construction completed on March 5, 19 73

Well is terminated 10 inches ☒ above final gradeWell disinfected upon completion ☒ Yes ☐ NoWell sealed watertight upon completion ☒ Yes ☐ No

## MISCELLANEOUS DATA

std test: 2	Hrs. at 6	GPM
Depth from surface to normal water level 15 ft.		
Depth to water level when pumping 105 ft.		

Water sample sent to

Madison

Laboratory on: March 5, 19 73

Our opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

 Richard Berkholtz, Pres. Registered Well Driller  
 COMPLETE MAIL ADDRESS  
 BERKHOLTZ DRILLING CO., INC.  
 2120 W. Clybourn St., Milwaukee, WI 53233

Please do not write in space below 3/8/73 gk

LIFETIME TEST RESULT GAS - 24 HRS. GAS - 48 HRS. CONFIRMED REMARKS

V. 3-71

STATE OF WISCONSIN  
CONSTRUCTOR'S REPORT DEPARTMENT OF RESOURCE DEVELOPMENT

CITY: Waukesha  
CHECK ONE: ☒ Town ☐ Village ☐ City  
NAME: Waukesha

SECTION (Number and Street or 1/4 section, section, township and range. Also give subdivision name, lot and block numbers when available.)

non responsive  
non responsive

distance in feet from street to well (record answer in appropriate block)

WATER DRAIN	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILLO	ABANDONED WELL	SINK HOLE
TILE	54		67	70				

POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

Well is intended to supply water for: Shop

WELL LOG					10. FORMATIONS			
(In.)	From (ft.)	To (ft.)	Dis. (in.)	From (ft.)	To (ft.)	Kind	From (ft.)	To (ft.)
Q.D.	Surface	40	6 1/2	0	40'	Sand (fine)	Surface	20
			6 1/8	40'	100'	Limestone	20	40

CASING, LINER, CURBING, AND SCREEN							
(In.)	Kind and Weight	From (ft.)	To (ft.)				
4"	Black steel Iron	Surface	40				
	Pipe 20# New						

GROUT OR OTHER SEALING MATERIAL				
Kind	From (ft.)	To (ft.)		
Drilled Cuttings	Surface	20		
Cement	20	40		

MISCELLANEOUS DATA				Well construction completed on 5/1 1967	
1 test:	Hrs. at 10	GPM	Well is terminated 8 inches <input checked="" type="checkbox"/> above <input type="checkbox"/> below final grade		
ft. from surface to normal water level	14	ft.	Well disinfected upon completion <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
ft. to water level when pumping	16	ft.	Well sealed watertight upon completion <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Water sample sent to	Madison		laboratory on: 6/8		1967

For opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

Signature: [Signature]  
Registered Well Driller: [Signature]  
Please do not write in space below

FORM TEST RESULT	GAS - 24 HRS.	GAS - 48 HRS.	CONFIRMED	REMARKS



STATE OF WISCONSIN  
CONSTRUCTOR'S REPORT DEPARTMENT OF RESOURCE DEVELOPMENT Vol 6

CHECK ONE ☒ Town ☐ Village ☐ City NAME MAULCESHA  
Number and Street or 1/4 section, section, township and range. Also give subdivision name, lot and block numbers when available.)

non responsive

Distance in feet from well to nearest: BUILDING SANITARY SEWER FLOOR DRAIN FOUNDATION DRAIN WASTE WATER DRAIN  
C. I. TILE C. I. TILE SEWER CONNECTED INDEPENDENT C. I. TILE  
and answer in appropriate block) 15  
WATER DRAIN SEPTIC TANK PRIVY SEEPAGE PIT ABSORPTION FIELD BARN SILO ABANDONED WELL SINK HOLE  
TILE 60 65  
POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

It is intended to supply water for: Home

9. WELL					10. FORMATIONS		
From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)	Kind	From (ft.)	To (ft.)
Surface	<u>20</u>	<u>6</u>	<u>42</u>	<u>80</u>	<u>STAINLY CLAY</u>	Surface	<u>28</u>
<u>20</u>	<u>42</u>				<u>LIME ROCK</u>	<u>28</u>	<u>80</u>

11. CASING, LINER, CURBING, AND SCREEN			
Kind and Weight	From (ft.)	To (ft.)	
<u>19-18 NEW BLACK</u>	Surface	<u>42</u>	
<u>1/2" TEEL WELD JOINT</u>			

12. GROUT OR OTHER SEALING MATERIAL		
Kind	From (ft.)	To (ft.)
<u>MENT GROUT</u>	Surface	<u>42</u>

MISCELLANEOUS DATA  
test: 8 Hrs. at 20 GPM  
from surface to normal water level 30 ft.  
to water level when pumping 35 ft.  
sample sent to MADISON laboratory on: 10-2 1969  
Well construction completed on 9-26 1969  
Well is terminated 5 inches ☒ above ☐ below final grade  
Well disinfected upon completion ☒ Yes ☐ No  
Well sealed watertight upon completion ☒ Yes ☐ No

opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-pumprooms access pits, etc., should be given on reverse side.

SURE Robert Johnson Registered Well Driller COMPLETE MAIL ADDRESS 2683 Elmwood Pewaukee  
Please do not write in space below

TEST RESULT	GAS - 24 HRS.	GAS - 48 HRS.	CONFIRMED	REMARKS

#4

## non responsive

F. Kuranz, Supt. of Utility; Milaeger Well Drilling Co.,  
Elevation 626 Contractors, 1945

Samples examined by F. T. Chvstee, Nos. 122843-123237

0-20	20	Till, rusty gray, dolomitic	24" pipe
20-25	5	Clay, gray, dolomitic	
25-35	10	Gravel, coarse, stony	38.37
35-85	50	Dolomite, light gray	
35-105	20	Dolomite, light gray; chert, white (Waukesha)	
105-210	105	Dolomite, light gray	23" hole
			12 1/2" v.i. pipe cemented
210-215	5	Dolomite, blue-gray	212.2 water
215-235	20	Shale, blue-gray, dolomitic; dolomite, bluey	
235-255	20	Shale, blue-gray, dolomitic	
255-270	15	Shale, brown-gray, dolomitic	
270-285	15	Shale, blue-gray, dolomitic	
285-295	10	Dolomite, brown-gray	
295-390	95	Shale, blue-gray, dolomitic	
390-410	20	Shale, blue-gray, dolomitic; dolomite, light gray	
410-430	20	Dolomite, light gray	
430-450	20	Dolomite, gray	
450-460	10	Dolomite, light blue-gray	
460-470	10	Dolomite, blue-gray, light gray	
470-485	15	Dolomite, light gray	
485-495	10	Dolomite, gray and blue-gray	
495-530	35	Dolomite, blue-gray	
530-645	115	Dolomite, light gray to gray, sandy	
645-670	25	Sandstone, fine to coarse, gray, very dol.; shale, green-gray	
670-685	15	Sandstone, medium to fine, light gray	
685-695	10	Sandstone, fine to silty, light gray	
695-715	20	Sandstone, medium to fine, light gray	
715-825	110	Sandstone, silty to fine, light gray	12" hole

825-830	5	Shale, green-gray and red
830-835	5	Sandstone, fine to medium, lt. gray, dolomitic
835-840	5	Sandstone, fine to medium, light gray
840-865	25	Sandstone, fine, light gray, dolomitic
865-900	15	Sandstone, fine to medium, lt. gray, dolomitic
880-900	20	Sandstone like above; shale, green-gray
900-915	15	Sandstone, fine to medium, gy, pink, dol; sh.
915-935	20	Sandstone, fine to medium, light pink, dol.
935-945	10	Sandstone, silty to fine, gray, dolomitic
945-950	5	Sandstone, fine, light gray, dolomitic
950-970	20	Sandstone, fine to silty, gray, dolomitic
970-975	5	Siltstone, gray, dolomitic
975-980	5	Sandstone, silty to fine, gy, pink, dol.
980-995	15	Shale, silty, red, dolomitic
995-1005	10	Shale, sandy, red, dolomitic
1005-1025	20	Sandstone, fine to medium, pink, dolomitic
1025-1040	15	Sandstone, medium to fine, gray, dolomitic
1040-1055	15	Sandstone, silty to medium, gray, dolomitic
1055-1070	15	Sandstone, fine to medium, light gray, dol.
1070-1095	25	Sandstone, medium to fine, light gray, dol.
1095-1110	15	Sandstone, silty to fine, light gray, dol.
1110-1120	10	Sandstone, medium to fine, light gray, dol.
1120-1125	5	Sandstone, fine to medium, light gray, dol.
1125-1145	20	Sandstone, fine, light gray
1145-1155	10	Sandstone, fine to medium, light gray, dol.
1155-1175	20	Sandstone, fine to medium, lt. gray, dol., soft
1175-1185	10	Sandstone, very coarse to medium, light gray
1185-1200	15	Sandstone, medium to fine, light gray
1200-1210	10	Sandstone, silty to medium, pink, dolomitic
1210-1220	10	Shale, red, green-gray, dolomitic
1220-1225	5	Sandstone, medium to fine, pink, soft
1225-1230	5	Sandstone, fine to medium, lt. gray, soft
1230-1245	15	Sandstone, fine to medium, light gray, soft
1245-1250	5	Sandstone like above, dolomitic, hard
1250-1275	15	Sandstone, medium to fine, pink-gray
1275-1280	5	Sandstone, fine to medium, light gray, soft
1280-1300	20	Sandstone, medium to fine, white, soft
1300-1325	25	Sandstone, fine to medium, light gray
1325-1340	15	Sandstone, fine to medium, light gray, soft
1340-1355	15	Sandstone, medium to fine, white, soft
1355-1400	45	Sandstone, fine to medium, light gray, soft
1400-1410	10	Sandstone like above, slightly dolomitic
1410-1420	10	Shale, red, green-gray
1420-1440	10	Sandstone, fine to medium, light gray
1430-1450	20	Sandstone, medium to fine, some coarse, light
1450-1480	30	Sandstone, fine to silty, light gray, dolomitic
1480-1490	10	Sandstone, medium to fine, white
1490-1500	10	Sandstone, fine to medium, light gray
1500-1510	10	Sandstone, medium to fine, white
1510-1525	15	Sandstone, fine to medium, light gray
1525-1530	5	Sandstone, fine, light gray, dolomitic
1530-1535	5	Shale, red and green-gray
1535-1555	20	Sandstone, coarse to medium, light gray
1555-1560	5	Sandstone, medium to fine, light gray
1560-1575	15	Siltstone, light pink-gray
1575-1577	2	Sandstone, silty to medium, light gray, dol.
1577-1578	1	Sandstone, coarse to fine, light gray, dol.
1578-1580	2	Sandstone, fine, light gray, dolomitic

1285 shot

1340 shot

1440 shot

1580-1585	5	Sandstone, coarse to fine, py, dol; sh. red	
1585-1595	10	Sandstone, fine to medium, gray, dolomitic	1610
1595-1605	10	Sandstone, fine to silty, gray, dolomitic	
1605-1635	30	Sandstone, medium to fine, light gray, dol.	
1635-1645	10	Shale, red	
1645-1670	25	Sandstone, coarse to fine, light gray	
1670-1690	20	Sandstone, fine to medium, light gray	
1690-1695	5	Sandstone, fine to silty, lt. gray, dolomitic	
1695-1705	10	Shale, red, green-gray	
1705-1740		Sandstone, Coarse to fine, light gray; top soft	
1740-1745	5	Shale, red	1730
1745-1750	5	Sandstone, medium to fine, gray, dolomitic	
1750-1765	15	Sandstone, coarse to fine, light gray	
1765-1770	5	Sandstone, coarse to fine, gray, soft	
1770-1785	15	Sandstone, silty to medium, light gray, soft	
1785-1795	10	Sandstone, fine to silty, light gray	
1795-1800	5	Shale, red, gray, hard	
1800-1810	10	Sandstone, coarse to fine, gray	
1810-1830	20	Shale, red	
1830-1855	25	Sandstone, coarse to fine, light gray	
1855-1870	15	Sandstone, coarse to fine, light gray, soft	
1870-1875	5	Sandstone, fine, gray, hard	
1875-1880	5	Siltstone, light gray, sandy, hard	
1880-1890	10	Sandstone, coarse to fine, light gray	
1890-1895	5	Sandstone, coarse to fine, gray, hard	
1895-1900	5	Sandstone, silty to coarse, light gray, soft	
1900-1905	5	Sandstone, fine, light gray, soft	1915
1905-1930	25	Sandstone, coarse to medium, light gray, soft	
1930-1935	5	Sandstone, coarse to fine, gray, hard	
1935-1945	10	Shale, gray, hard	
1945-1950	5	Sandstone, coarse to fine, light gray, soft	
1950-1975	25	Sandstone, medium to fine, light gray, soft	
1975-1980	5	Sandstone, medium to fine, gray, hard	
1980-1994	14	Shale, red, gray and error in depth	1995 a

Corrected total depth = 1995 Shots 125 lbs each of 80 percent dynamite  
Formations: Drift; Niagara; Richmond (Maquoketa); St. Peter; Eau Claire; Mt. Simon  
Tested 34 hours at 840 E.P.M. specific capacity = 7.37 g.p.m./ft.

non responsive

A. P. Kuranz, Manager, Water Utility Miller Well and Pump Co., Contractors, 1954  
 Samples examined by F. T. Thwaites, Wisconsin Geological Survey, Nos. 164053-  
 Cementing by Holland Well Service Co. Elevation 878.88 164474

R I T T	85	0-5	5	Fill, gray, weathered	26" pipe
		5-25	20	Fill, gray, dolomitic; no sample 15-20	
		25-50	25	Gravel, mainly stony	
		50-60	10	Fill, gray, dolomitic	
		60-70	10	Gravel, very fine, sandy	
N I A G	65	70-85	15	Gravel, fine, stony, some sandy	79
		85-100	15	Dolomite, light gray; chert, white	
		100-150	50	Dolomite, light gray	
R I C H M O N D	95	150-155	5	Shale, pink, dolomitic; dolomite, light gray	25" hole
		155-170	15	Dolomite, light gray	
		170-190	20	Shale, blue-gray, dolomitic	
		190-200	10	Dolomite, blue-gray; shale, blue-gray, dolomitic	
		200-215	15	Shale, blue-gray, dolomitic	
		215-240	25	Dolomite, shaly, dark blue-gray	
		240-250	10	Shale, blue-gray, dolomitic	
		250-255	5	Dolomite, shaly, dark blue-gray	
		255-335	80	Shale, blue-gray, dolomitic	
		335-495	160	Dolomite, light gray	295 water
A L E N A L A T T E V I L L E	270	495-505	10	Dolomite, blue-gray, light gray	
		505-550	45	Dolomite, light gray	
		550-560	10	Dolomite, gray, lt. gy, light blue-gray	
		560-580	20	Dolomite, gray, light gray	
		580-590	10	Sandstone, fine to coarse, light gray, dol.	
		590-595	5	Dolomite, light gray, white; sandstone as above	
		595-605	10	Sandstone fine to coarse, light gray, dol.	
		605-665	60	Sandstone, fine to medium, light gray	
		665-675	10	Sandstone, medium to fine, light gray	
		675-710	35	Sandstone, fine to medium, light gray	19" hole
S T A R		710-725	15	Sandstone, medium to fine, light gray	
		725-765	40	Sandstone, fine to medium, light gray	

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195	765-795	30	Sandstone, fine to medium, light gray, dolomitic
	795-800	5	Sandstone, Medium to fine, light gray
	800-825	25	Sandstone, fine to medium, light gray, dol.
	825-830	5	Sandstone, medium to fine, light gray
	830-840	10	Siltstone, gray, very dolomitic
	840-850	10	Sandstone, very fine, lt. gy, pink, very dol.
	850-855	5	Shale, silty, pink, dolomitic
	855-860	5	Siltstone, light gy, very dol., glauconitic
	860-870	10	Sandstone, medium, to fine, lt. gy, dol, glauc.
	870-910	40	Sandstone, fine to medium, light gray, dolomitic
	910-920	10	Sandstone, fine, gray, very dolomitic, hard
	920-925	5	Sandstone as above; siltstone, bu-gray, dol.
	925-930	5	Sandstone, as above; siltstone, red, dolomitic
	930-940	10	Sandstone, fine, red, pink, gn-gy, very dol.
	940-960	20	Sandstone, very fine, silty, pink, dolomitic
	960-970	10	Sandstone, fine, silty, lt. pink-gy, dolomitic
	970-985	15	Sandstone, fine to medium, lt. gray, dolomitic
	985-995	10	Sandstone, fine, light gray, dolomitic
	995-1000	5	Sandstone, medium to fine, lt. gy, dolomitic
	1000-1020	20	Sandstone, fine to medium, lt. gray, dol.
	1020-1025	5	Sandstone, medium to fine, lt. gy, dolomitic
	1025-1045	20	Sandstone, fine to medium, light gray, dol.
	1045-1050	5	Sandstone, medium to fine, lt. gy, dol., hard
280	1050-1080	30	Sandstone, fine to medium, light gray, dol.
	1080-1085	5	Sandstone, fine to medium, light gray
	1085-1110	25	Sandstone, fine to medium, light gray, dol.
	1110-1115	5	Sandstone, fine to medium, light gray
	1115-1140	25	Sandstone, fine to medium, light gray, dol.
	1140-1145	5	Sandstone, medium to fine, light gray
	1145-1150	5	Sandstone, fine to medium, light gray, dolomitic
	1150-1155	5	Sandstone, fine, silty, pink-gy, dolomitic
	1155-1165	10	Siltstone, red, dolomitic
	1165-1170	5	Sandstone, medium to fine, silty, lt. pk-gy, dol
	1170-1195	25	Sandstone, fine to medium, light pink-gray
	1195-1210	15	Sandstone, fine to medium, lt. pink-gray, dol.
	1210-1220	10	Sandstone, fine to medium, light gray
	1220-1230	10	Sandstone, medium to fine, light gray
	1230-1235	5	Sandstone, medium to fine, lt. gray, sl. dol.
	1235-1260	25	Sandstone, fine to medium, light gray, sl. dol.
	1260-1270	10	Sandstone, medium to fine, white
	1270-1290	20	Sandstone, fine to medium, light gray
	1290-1300	10	Sandstone, medium to fine, white
	1300-1315	15	Sandstone, fine to medium, light gray
	1315-1325	10	Sandstone, fine, light gray, slightly dol.
	1325-1330	5	Sandstone, fine to medium, lt. gy, dolomitic
	1330-1345	15	Sandstone, fine, light gray, slightly dol.
	1345-1360	15	Shale, red, green-gray
	1360-1375	15	Sandstone, medium to fine, light gray
	1375-1380	5	Sandstone, very fine to fine, lt. pink-gy.
	1380-1390	10	Sandstone, fine to medium, light gray
	1390-1410	20	Sandstone, fine, some medium, light gray, dol.
	1410-1445	35	Sandstone, very fine to fine, light gray, slightly dolomitic
	1445-1455	10	Sandstone, fine to medium, light gray, dol.
	1455-1460	5	Sandstone, very fine to fine, lt. pk-gy, dol.
	1460-1475	15	Shale, red, green-gray
	1475-1480	5	Sandstone, medium to fine, light gray
	1480-1485	5	Sandstone, very fine to fine, lt. pink-gray
	1485-1490	5	Sandstone, fine to medium, lt. pink-gray
	1490-1500	10	Sandstone, fine to very fine, lt. pk-gy, lt. gy
	1500-1525	25	Sandstone, fine to med, med. to fine, lt. gray
	1525-1555	30	Sandstone, medium to fine, fine to med, lt. pk
	1555-1565	10	Sandstone, fine to very fine, lt. gy, lt. pink
	1565-1575	10	Sandstone, fine to coarse, light gray
	1575-1580	5	Siltstone, sandy, light gray
	1580-1585	5	Sandstone, coarse to fine, light pink-gray
	1585-1595	10	Sandstone, fine to coarse, light gray

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1600-1635	35		Sandstone, fine to coarse, coarse to fine below, light gray
1635-1645	10		Shale, red, gray, green-gray
1645-1650	5		Sandstone, very fine to fine, light gray
1650-1665	15		Sandstone, fine to coarse, light gray
1665-1670	5		Sandstone, very fine to fine, lt. gy, dolomitic
1670-1675	5		Siltstone, sandy, gray
1675-1680	5		Sandstone, very fine to medium, light gray
1680-1685	5		Sandstone, coarse to fine, light gray
1685-1715	30		Sandstone, very fine to medium, light gray
1715-1755	40		Sandstone, fine to coarse, light gray, fine at bottom
1755-1760	5		Sandstone, fine to coarse, light gray
1760-1790	30		Sandstone, fine, light gray
1790-1800	10		Sandstone, very fine to medium, lt. gy, sl. dol.
1800-1815	15		Sandstone, fine to coarse, light gray
1815-1825	10		Sandstone, fine to medium, light gray
1825-1845	20		Sandstone, fine to coarse, light gray
1845-1865	20		Sandstone, very fine to medium, light gray
1865-1875	10		Sandstone, very coarse to fine, light gray
1875-1890	15		Shale, silty, gray, slightly dolomitic
1890-1895	5		Sandstone, coarse to fine, light gray
1895-1900	5		Sandstone, fine, light gray
1900-1930	30		Sandstone, medium to fine, light gray
1930-1935	5		Sandstone, coarse to fine, light gray
1935-1945	10		Sandstone, very fine to medium, light gray
1945-1950	5		Sandstone, fine to medium, light gray
1950-1960	10		Sandstone, coarse to fine, light gray
1960-1990	30		Sandstone, fine to coarse, lower part coarser, light gray
1990-2005	15		Sandstone, fine to coarse, light gray
2005-2015	10		Sandstone, fine to very fine, light gray
2015-2020	5		Sandstone, coarse to fine, light gray
2020-2040	20		Sandstone, very fine to medium, light gray
2040-2060	20		Sandstone, very fine to coarse, light gray
2060-2090	30		Sandstone, coarse to fine, light gray, more fine layers below 2080
2090-2105	15		Sandstone, coarse to fine, light gray
2105-2115	10		Sandstone, very fine to coarse, light gray
2115-2120	5		Shale, gray, pink, hard drilling

200# shot

1648-1661

350# shot

1715-1720

350# shot

1958-1971

350# shot

2008-2021

350# shot

2038-2051

300# shot

2083-2093

Formations: Drift; Niagara; Richmond (Maquoketa); Galena-Platteville; St. Peter (may include some Dresbach or Galesville); Eau Claire; Mt. Simon; may reach pre-Cambrian

Tested 36 hours at 1250 g.p.m. specific capacity = 8.0 g.p.m./ft.

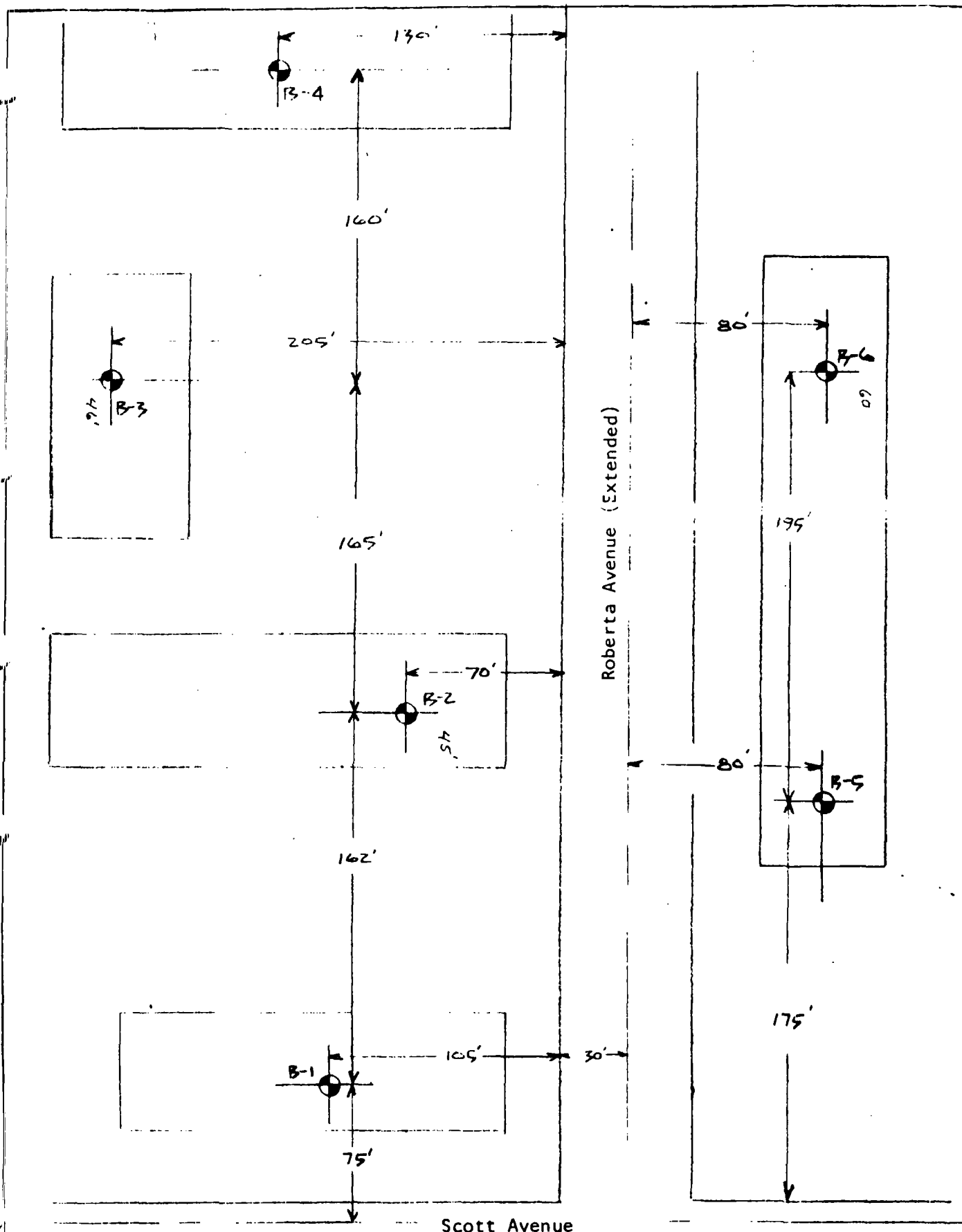
Additional copies may be secured from Wisconsin Geological Survey, Science Hall, Madison 6, Wis.

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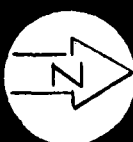




Soil Boring Location Diagram  
Proposed Apartment

Waukesha,

Wisconsin



**SOIL TESTING SERVICES, INC.**

9055 N. 51ST STREET  
MILWAUKEE WISCONSIN 53223

DLB 80618

9-14-77

					LOG OF BORING NUMBER B-1						
PROJECT NAME Proposed Apartment Building					ARCHITECT-ENGINEER						
non responsive					<div style="text-align: center;"> <p>○ UNCONFINED COMPRESSIVE STRENGTH TONS/FT.<sup>2</sup></p> <p>1 2 3 4 5</p> <hr/> <p>PLASTIC LIMIT %      WATER CONTENT %      LIQUID LIMIT %</p> <p>⊗      ●      △</p> <p>10 20 30 40 50</p> <hr/> <p>⊗ STANDARD PENETRATION      BLOWS/FT.</p> <p>10 20 30 40 50</p> </div>						
ELEVATION DEPTH	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY						DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. <sup>3</sup>
SURFACE ELEVATION											
10FT		RB			Miscellaneous refuse consisting of concrete, wood, paper, wire, metal, etc.						
20FT											
30FT											
40FT											
48.5	1	DB			"A"						
					End of Boring						
					Used 15' of 4" casing and drilling fluid						
					"A" Limestone, gray - hard - massive - slightly weathered, some horizontal fractures						
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.											
WL		WS OR WD		BORING STARTED 8-25-77		SOIL TESTING SERVICES, INC. 9055 N. 51ST STREET MILWAUKEE WISCONSIN 53223					
WL		BCR		BORING COMPLETED 8-25-77							
RIG CME-55 FOREMAN PW						APPROVED BY DLB STS JOB NO. 80618					

					LOG OF BORING NUMBER B-2				
PROJECT NAME Proposed Apartment Building					ARCHITECT-ENGINEER				
SITE LOCATION <div style="background-color: black; color: white; text-align: center; padding: 5px;">non responsive</div>					<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>UNCONFINED COMPRESSIVE STRENGTH TONS/FT.<sup>2</sup></p> <p>1 2 3 4 5</p> </div> <div style="width: 45%;"> <p>PLASTIC LIMIT %      WATER CONTENT %      LIQUID LIMIT %</p> <p>X      ●      △</p> <p>10 20 30 40 50</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <p>STANDARD PENETRATION</p> <p>⊗</p> <p>10 20 30 40 50</p> </div> <div style="width: 45%;"> <p>BLOWS/FT.</p> <p>10 20 30 40 50</p> </div> </div>				
ELEVATION DEPTH	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY					
DESCRIPTION OF MATERIAL									
SURFACE ELEVATION									
10FT					Miscellaneous refuse consisting of concrete, wood, paper, wire, metal, etc.				
20FT		RB							
30FT									
40FT		RB			Sand and gravel				
45FT	1	RB			Driller indicated rock while rockbitting				
					End of Boring				
					Used 30' of 4" casing and drilling fluid				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.									
WL	WS OR WD		BORING STARTED 8-26-77		SOIL TESTING SERVICES, INC. 9055 N. 51ST STREET MILWAUKEE WISCONSIN 53223 APPROVED BY DLE STS JOB NO. 80618				
WL	BCR		BORING COMPLETED 8-26-77						
WL			RIG CME-55 FOREMAN PW						

					LOG OF BORING NUMBER <div style="text-align: right;">B-3</div>					
PROJECT NAME Proposed Apartment Building					ARCHITECT-ENGINEER					
SITE LOCATION <div style="background-color: black; color: white; padding: 5px; font-size: 1.2em;">non responsive</div>					<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>UNCONFINED COMPRESSIVE STRENGTH TONS/FT.<sup>2</sup></p> <p>1 2 3 4 5</p> <hr/> <p>PLASTIC LIMIT %      WATER CONTENT %      LIQUID LIMIT %</p> <p>10 20 30 40 50</p> <p>STANDARD PENETRATION      BLOWS/FT.</p> <p>10 20 30 40 50</p> </div> <div style="width: 50%; text-align: center;"> <p>○</p> <p>×</p> <p>●</p> <p>△</p> </div> </div>					
ELEVATION DEPTH	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY						DESCRIPTION OF MATERIAL
SURFACE ELEVATION										
10 FT					Miscellaneous refuse consisting of concrete, wood, paper, wire, metal, etc.					
20 FT										
30 FT										
40 FT										
46 FT		RB			Driller indicated rock while drilling					
					End of Boring					
					Used 45' hollow stem and drilling fluid					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES: IN-SITU. THE TRANSITION MAY BE GRADUAL.										
WL	WS OR WD		BORING STARTED 9-2-77		SOIL TESTING SERVICES, INC. 9055 N. 51ST STREET MILWAUKEE WISCONSIN 53223					
WL	BCR ACR		BORING COMPLETED 9-6-77							
VL			RIG CME-55 FOREMAN PW		APPROVED BY LB		STS JOB NO. 80618			

					LOG OF BORING NUMBER B-4									
PROJECT NAME Proposed Apartment Building					ARCHITECT-ENGINEER									
SITE LOCATION					<div style="border: 1px solid black; padding: 5px;"> <p>UNCONFINED COMPRESSIVE STRENGTH TONS/FT.<sup>2</sup></p> <p>1 2 3 4 5</p> <hr/> <p>PLASTIC LIMIT %      WATER CONTENT %      LIQUID LIMIT %</p> <p>⊗      ————      ●      ————      △</p> <p>10      20      30      40      50</p> <hr/> <p>⊗ STANDARD PENETRATION      BLOWS/FT.</p> <p>10      20      30      40      50</p> </div>									
ELEVATION	DEPTH	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE						RECOVERY	UNIT DRY WT. LBS./FT. <sup>3</sup>			
DESCRIPTION OF MATERIAL														
SURFACE ELEVATION														
<div style="position: relative;"> <div style="position: absolute; left: -40px; top: 0; width: 40px; text-align: center;">10FT</div> <div style="position: absolute; left: -40px; top: 100px; width: 40px; text-align: center;">20FT</div> <div style="position: absolute; left: -40px; top: 200px; width: 40px; text-align: center;">30FT</div> <div style="position: absolute; left: -40px; top: 300px; width: 40px; text-align: center;">40FT</div> <div style="position: absolute; left: -40px; top: 350px; width: 40px; text-align: center;">41.5</div> </div>						<p>Miscellaneous refuse consisting of concrete, wood, paper, wire, metal, etc.</p>								
<div style="position: relative;"> <div style="position: absolute; left: -40px; top: 0; width: 40px; text-align: center;">10FT</div> <div style="position: absolute; left: -40px; top: 100px; width: 40px; text-align: center;">20FT</div> <div style="position: absolute; left: -40px; top: 200px; width: 40px; text-align: center;">30FT</div> <div style="position: absolute; left: -40px; top: 300px; width: 40px; text-align: center;">40FT</div> <div style="position: absolute; left: -40px; top: 350px; width: 40px; text-align: center;">41.5</div> </div>						<p>"A"</p> <p>End of Boring</p> <p>"A" Limestone, gray and brown - firm - massive - slightly to moderately weathered, some cavities and open joints</p>								
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.														
WL		WS OR WD		BORING STARTED 8-25-77		SOIL TESTING SERVICES, INC. 9055 N. 51ST STREET MILWAUKEE WISCONSIN 53223 APPROVED BY DLB STS JOB NO. 80618								
WL		BCR		ACR						BORING COMPLETED 8-25-77				
WL		RIG CME-55 FOREMAN PW												

					LOG OF BORING NUMBER B-5						
PROJECT NAME Proposed Apartment Building					ARCHITECT-ENGINEER						
SITE LOCATION <div style="background-color: black; color: white; padding: 5px; font-size: 24px; font-weight: bold;">non responsive</div>											
ELEVATION DEPTH	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. <sup>3</sup>	<div style="display: flex; justify-content: space-between;"> <div>           UNCONFINED COMPRESSIVE STRENGTH TONS/FT.<sup>2</sup>            1      2      3      4      5         </div> <div>           PLASTIC LIMIT %      WATER CONTENT %      LIQUID LIMIT %            X      ●      △            10      20      30      40      50         </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>           STANDARD PENETRATION BLOWS/FT.            X            10      20      30      40      50         </div> </div>				
							SURFACE ELEVATION				
10FT					Miscellaneous refuse consisting of concrete, wood, paper, wire, metal, etc.						
20FT											
30FT		RB									
40FT											
50FT		RB				Sand & gravel noted while drilling					
52.5	1	DB			"A" End of Boring Used 48" hollow stem and drilling fluid. "A" Limestone, gray, hard, massive, slightly weathered, some joints, cavities and horizontal fractures						
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.											
WL	WS OR WD		BORING STARTED 9-7-77		SOIL TESTING SERVICES, INC. 9055 N. 51ST STREET MILWAUKEE WISCONSIN 53223						
WL	BCR		BORING COMPLETED 9-7-77								
WL			RIG CME-55 FOREMAN PW								APPROVED BY: DLB

					LOG OF BORING NUMBER <div style="text-align: right;">B-6</div>						
PROJECT NAME Proposed Apartment Building					ARCHITECT-ENGINEER						
non responsive					<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>UNCONFINED COMPRESSIVE STRENGTH TONS/FT.<sup>2</sup></p> <p>1 2 3 4 5</p> <hr/> <p>PLASTIC LIMIT %      WATER CONTENT %      LIQUID LIMIT %</p> <p>X      ●      △</p> <p>10 20 30 40 50</p> <hr/> <p>⊗ STANDARD PENETRATION      BLOWS/FT.</p> <p>10 20 30 40 50</p> </div> <div style="width: 45%; text-align: center;"> <p>UNIT DRY WT. LBS./FT.<sup>3</sup></p> </div> </div>						
ELEVATION	DEPTH	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE						RECOVERY	DESCRIPTION OF MATERIAL
SURFACE ELEVATION											
<div style="display: flex;"> <div style="width: 15%; text-align: center;"> <div style="border: 1px solid black; width: 100%; height: 100%; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background: repeating-linear-gradient(4deg, transparent, transparent 2px, black 2px, black 4px);"></div> </div> </div> <div style="width: 85%; padding-left: 10px;"> <p>Miscellaneous refuse consisting of concrete, wood, paper, wire, metal, etc.</p> </div> </div>											
1 55											
2 55						Fine sand, trace refuse - dark gray and brown - very dense (SP-Poss. Fill)					
3 55						Gravel, trace refuse and cable in sample - gray - extremely dense (Poss. Fill)					
4 DB						Driller indicated rock white drilling					
End of Boring Used 55' hollow stem and drilling fluid											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.											
WL		WS or WD		BORING STARTED 9-6-77		<div style="text-align: center;"> <b>SOIL TESTING SERVICES, INC.</b>            9055 N. 51ST STREET            MILWAUKEE · WISCONSIN 53223         </div>					
WL		BCR		ACR						BORING COMPLETED 9-7-77	
WL		RIG CME-55 FOREMAN PW								APPROVED BY DLB	

APPENDIX C

Site Photographs  
For  
WAUKESHA SANITARY LANDFILL



# FIELD PHOTOGRAPHY LOG SHEET

DATE 8-16-90

TIME 10:17

DIRECTION: N NNE NE ENE  
 (E) ESE SE SSE  
 S SSW SW WSW  
 W WNW NW NNW

WEATHER Warm, overcast

SITE Waukesha Landfill

# ROLL #1 FRAME-1

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)



DESCRIPTION: VIEW east along Estberg Ave. Site is located  
South of apartment buildings (Right side of photo)

# FIELD PHOTOGRAPHY LOG SHEET

DATE 8-16-90

TIME 10:17

DIRECTION: N NNE NE ENE  
 E ESE SE SSE  
 S SSW SW WSW  
 W WNW NW NNW

WEATHER Warm, Overcast

SITE Waukesha L.F.

# ROLL #1 FRAME-2

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)



DESCRIPTION: SPLIT spoon sample of soil Boring MW-2  
at depth 4.0 ft - 6.0 ft



# FIELD PHOTOGRAPHY LOG SHEET

DATE 8-16-90

TIME 10:23

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Warm, overcast

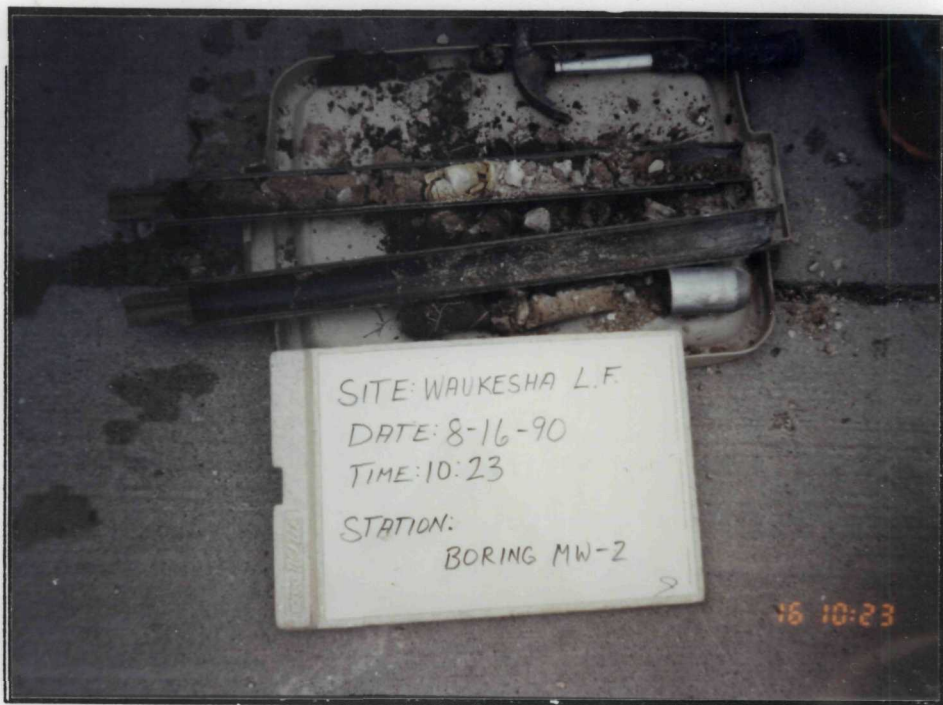
SITE Waukesha L.F.

# Roll #1 Frame-3

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)



DESCRIPTION: SPLIT spoon sample of Boring MW-2 at  
depth 6.0 ft - 8.0 ft.

# FIELD PHOTOGRAPHY LOG SHEET

DATE 8-16-90

TIME 10:31

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Warm, overcast

SITE Waukesha L.F.

# Roll #1 Frame-5

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)



DESCRIPTION: SPLIT spoon sample of SOIL BORING MW-2  
at depth 8.0 ft - 10.0 ft.



# FIELD PHOTOGRAPHY LOG SHEET

DATE 8-16-90

TIME 10:47

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Warm, Overcast

SITE Waukesha L.F.

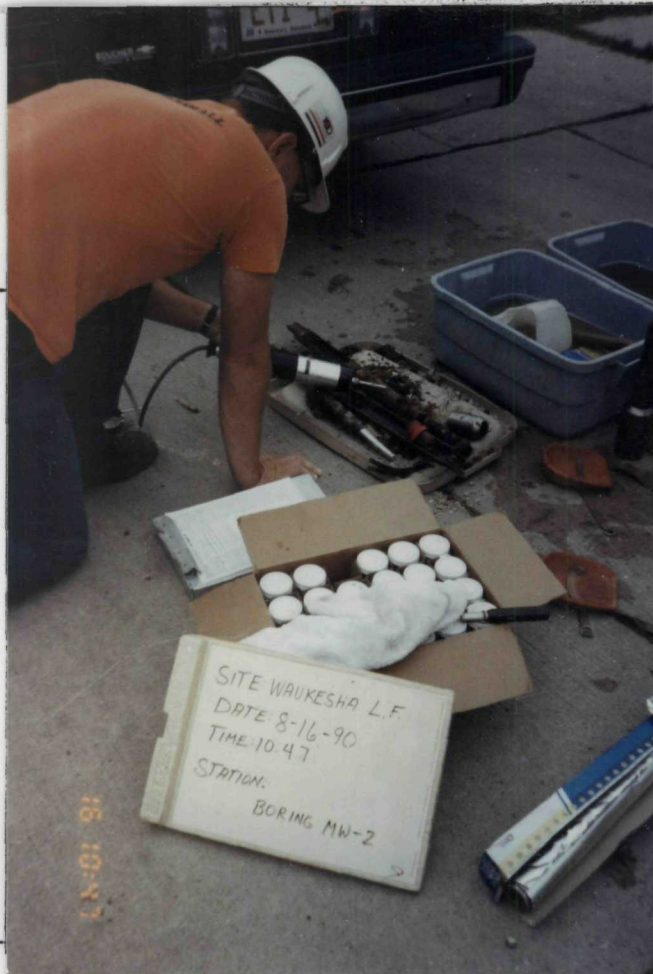
# Roll #1 Frame-6

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

DESCRIPTION: ORGANIC Vapor field screening of split spoon sample from soil Boring MW-2



# FIELD PHOTOGRAPHY LOG SHEET

DATE 8-16-90

TIME 13:58

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Warm, overcast

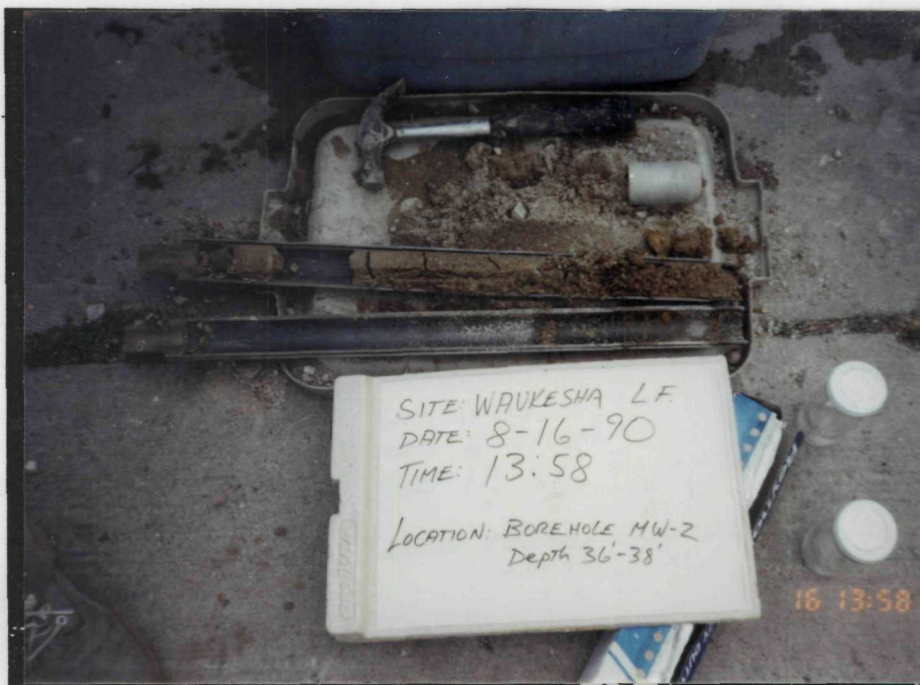
SITE Waukesha L.F.

# Roll #1 Frame-7

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)



DESCRIPTION: SPLIT spoon sample of soil Boring MW-2 showing sand & gravel deposits over bedrock (depth 36.0-38.0)



FIELD PHOTOGRAPHY LOG SHEET

DATE 8-16-90

TIME 14:47

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
⑤ SSW SW WSW  
W WNW NW NNW

WEATHER HOT, Sunny

SITE Waukesha L.F.

# Roll #1 Frame-8

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

SO2

DESCRIPTION: COLLECTION of Volatile sample from subsurface  
soil sample of soil BORING MW-2



FIELD PHOTOGRAPHY LOG SHEET

DATE 8-17-90

TIME 16:27

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Warm, Overcast

SITE Waukesha L.F.

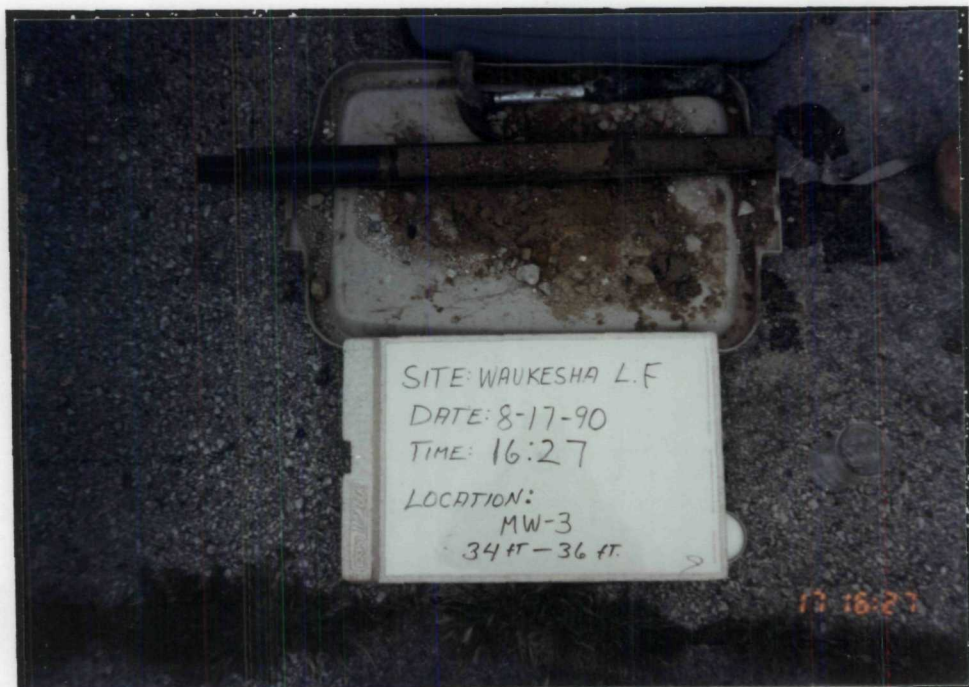
# Roll #1 Frame-9

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

DESCRIPTION: SPLIT SPOON sample of soil BORING MW-3  
at Groundwater Table 34.0 ft - 36.0 ft.





FIELD PHOTOGRAPHY LOG SHEET

DATE 8-17-90

TIME 16:50

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Hot, partly cloudy

SITE Waukesha L.F.

# Roll #1 Frame-11

PHOTOGRAPHED BY:

R. Johnson

SAMPLE ID# (if applicable)

S03

DESCRIPTION: Collection of sub-surface soil samples  
from soil boring MW-3



FIELD PHOTOGRAPHY LOG SHEET

DATE 8-18-90

TIME 16:46

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Hot, Sunny

SITE Waukesha L.F.

# Roll #1 Frame-12

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

MW-4 (DNR/STATE HYGIENE  
LAB)

DESCRIPTION: SPLIT SPOON sample of soil boring MW-4  
at depth 19.0 ft - 20.5 ft showing dark brown/black odorous soil





# FIELD PHOTOGRAPHY LOG SHEET

DATE 8-18-90

TIME 16:46

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Hot, Sunny

SITE Waukesha L.F.

# Roll #1 Frame-13

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

MW-4 (DNR/STATE LAB)

DESCRIPTION: SPLIT spoon sample of soil boring MW-4 at depth 19.0 ft - 20.5 ft collected for volatile organic analysis



# FIELD PHOTOGRAPHY LOG SHEET

DATE 8-18-90

TIME 17:36

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Hot, Sunny

SITE Waukesha L.F.

# Roll #1 Frame-14

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

DESCRIPTION: View of HSA showing wood fibers and stained odorous soil of soil boring MW-4





# FIELD PHOTOGRAPHY LOG SHEET

DATE 8-18-90

TIME 17:56

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Hot, Sunny

SITE Waukesha L.F.

# Roll #1 Frame-16

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)



DESCRIPTION: View of HSA SHOWING wood fibers and stained soil of soil boring MW-4

## FIELD PHOTOGRAPHY LOG SHEET

DATE 9-18-90

TIME 13:39

DIRECTION: (N) NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Cool, overcast

SITE Waukesha L.F.

# Roll #2 Frame-14

PHOTOGRAPHED BY:

R. Johnson

SAMPLE ID# (if applicable)

S07



DESCRIPTION: Sampling monitoring well MW-1



FIELD PHOTOGRAPHY LOG SHEET

DATE 9-18-90

TIME 14:27

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER COOL, overcast

SITE Waukesha L.F.

# Roll #2 Frame-15

PHOTOGRAPHED BY:

R. Johnson

SAMPLE ID# (if applicable)

S10

DESCRIPTION: Sampling of monitoring well MW-2  
filling 80oz semi-volatile bottles



FIELD PHOTOGRAPHY LOG SHEET

DATE 9-18-90

TIME 15:06

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER COOL, overcast

SITE Waukesha L.F.

# Roll #2 Frame-16

PHOTOGRAPHED BY:

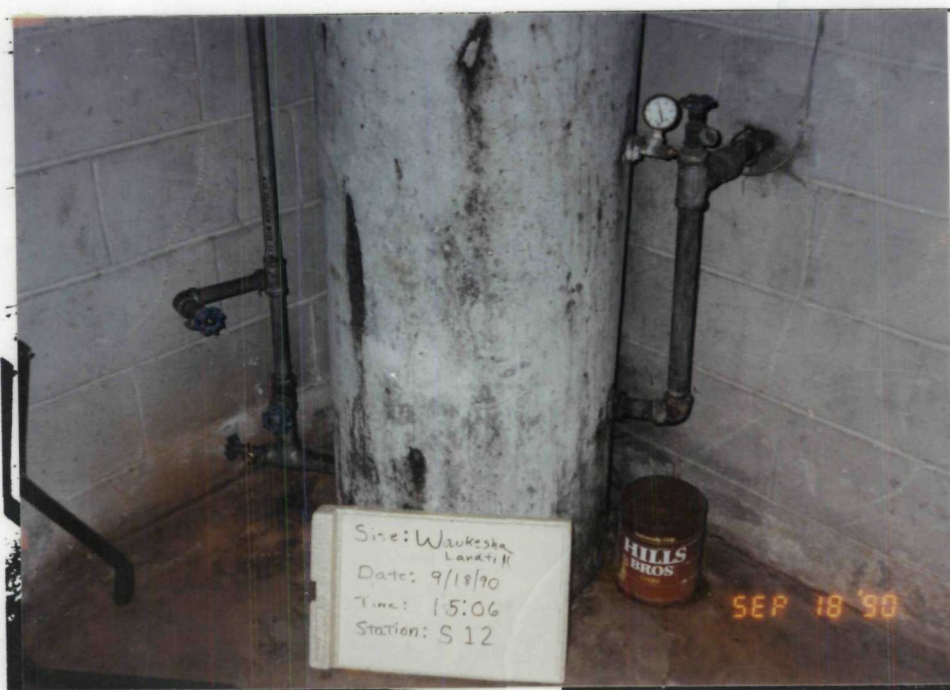
R. Johnson

SAMPLE ID# (if applicable)

S12

DESCRIPTION: Sample location - sample faucet at

Budget Rental 1320 S. West Avenue. DK-472





# FIELD PHOTOGRAPHY LOG SHEET

DATE 9-18-90

TIME 15:57

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
⑤ SSW SW WSW  
W WNW NW NNW

WEATHER COOL, overcast

SITE Waukesha L.F.

# Roll #2 Frame 17

PHOTOGRAPHED BY:

C. Krohn

SAMPLE ID# (if applicable)

S13



DESCRIPTION: Sampling location - sample faucet at Dee's Self Service (Phillips 66). Gasoline odor in water. DK-471

# FIELD PHOTOGRAPHY LOG SHEET

DATE 9-18-90

TIME 1:5

DIRECTION: ④ N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER COOL, overcast

SITE Waukesha L.F.

# Roll #3 Frame-2

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

S08



DESCRIPTION: Sampling Scopp Electric Monitoring well at 1239 S. West Avenue. Filling 80 OZ BOTTLES



FIELD PHOTOGRAPHY LOG SHEET

DATE 9-18-90

TIME 14:36

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Cool, overcast

slight rain

SITE Waukesha L.F.

# Roll #3 Frame-4

PHOTOGRAPHED BY:

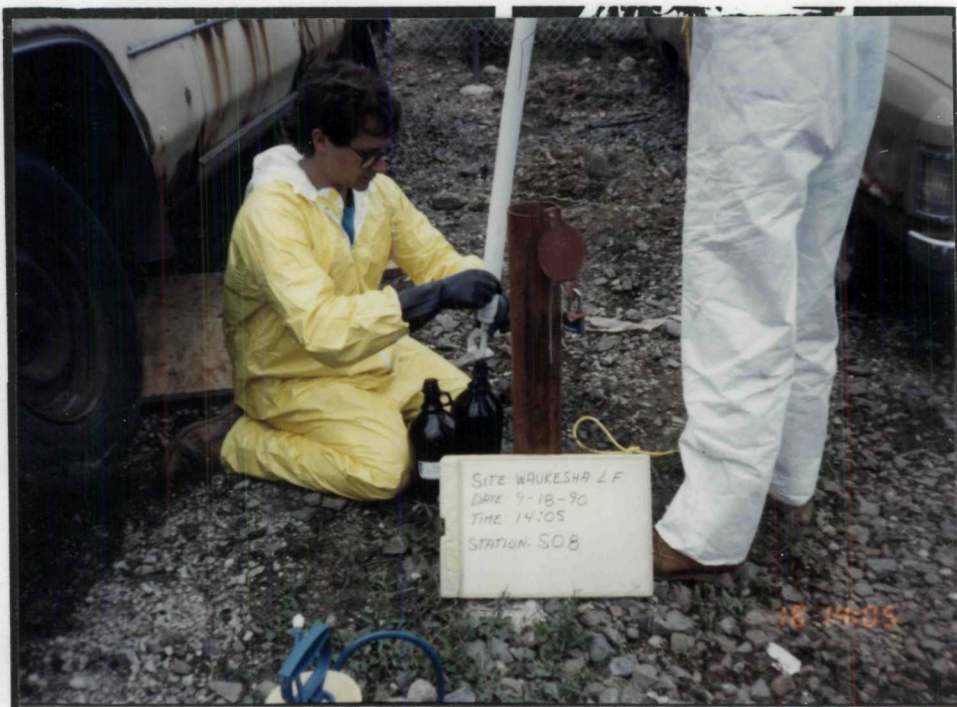
J. Krahling

SAMPLE ID# (if applicable)

509 (D09)

DESCRIPTION: Sample collection of monitoring well MW-3.

Filling metals transfer bottle



FIELD PHOTOGRAPHY LOG SHEET

DATE 9-18-90

TIME 15:15

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Cool, overcast

SITE Waukesha L.F.

# Roll #3 Frame-5

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

511

DESCRIPTION: Sample collection of NW monitoring sump  
at PDQ Station, 426 W. Sunset Drive. Site is in background





FIELD PHOTOGRAPHY LOG SHEET

DATE 9-19-90

TIME 11:53

DIRECTION: (N) NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Cool, overcast

SITE Waukesha L.F.

# Roll #3 Frame-6

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

501

DESCRIPTION: Field screening at area of sparse vegetation  
located in south central portion of site.



FIELD PHOTOGRAPHY LOG SHEET

DATE 9-19-90

TIME 12:05

DIRECTION: N NNE NE ENE  
(E) ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Cool, overcast

Dry

SITE Waukesha L.F.

# Roll #3 Frame-7

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

501

DESCRIPTION: Collection of surface soil sample at  
South-central portion of site





FIELD PHOTOGRAPHY LOG SHEET

DATE 9-19-90

TIME 12:35

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
(S) SSW SW WSW  
W WNW NW NNW

WEATHER Cool, overcast

Dry

SITE Waukesha L. F.

# Roll #3 Frame-8

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

SO2 (DO2)



DESCRIPTION: collection of surface soil sample in area of apparent stressed vegetation, south-central portion of site

FIELD PHOTOGRAPHY LOG SHEET

DATE 9-19-90

TIME 12:59

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW (NW) NNW

WEATHER Cool, overcast

Dry

SITE Waukesha L. F.

# Roll #3 Frame-9

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

SO3



DESCRIPTION: sample location on west-central portion of site in area of absent and stressed vegetation



# FIELD PHOTOGRAPHY LOG SHEET

DATE 9-19-90

TIME 13:01

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER Cool, overcast

SITE Waukesha L.F.

# Roll #3 Frame-10

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)



DESCRIPTION: View of south portion of site from Hoover Drive looking southeast

# FIELD PHOTOGRAPHY LOG SHEET

DATE 9-19-90

TIME 13:55

DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
W WNW NW NNW

WEATHER COOL, Cloudy

SITE Waukesha L.F.

# Roll #3 Frame-11

PHOTOGRAPHED BY:

J. Krahling

SAMPLE ID# (if applicable)

SD4 (Not retained)



DESCRIPTION: location of surface soil sample west of monitoring MW-3. Sample was not retained for analysis.



FIELD PHOTOGRAPHY LOG SHEET

DATE 9-19-91

TIME 14:13

DIRECTION: N NNE NE ENE  
☒ E ESE SE SSE  
 S SSW SW WSW  
 W WNW NW NNW

WEATHER cool, cloudy

SITE Waukesha L. F.

# Roll #3 Frame-12

PHOTOGRAPHED BY:

J. Krohling

SAMPLE ID# (if applicable)

S05 (background)



DESCRIPTION: surface soil sample location within grass area  
along S. West Avenue and west of Monitoring Well MW-3

FIELD PHOTOGRAPHY LOG SHEET

DATE \_\_\_\_\_

TIME \_\_\_\_\_

DIRECTION: N NNE NE ENE  
 E ESE SE SSE  
 S SSW SW WSW  
 W WNW NW NNW

WEATHER \_\_\_\_\_

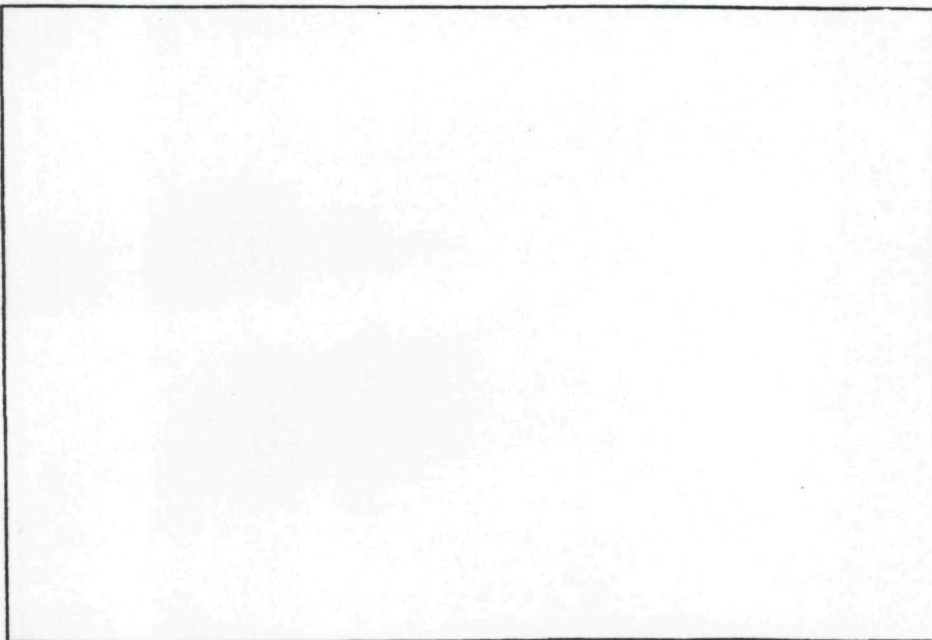
SITE \_\_\_\_\_

# \_\_\_\_\_

PHOTOGRAPHED BY: \_\_\_\_\_

SAMPLE ID# (if applicable) \_\_\_\_\_

DESCRIPTION: \_\_\_\_\_



APPENDIX D

Site 4-mile Radius Map  
For  
WAUKESHA SANITARY LANDFILL

# SDMS US EPA Region V

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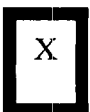
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APPENDIX D – SITE 4-MILE RADIUS MAP



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